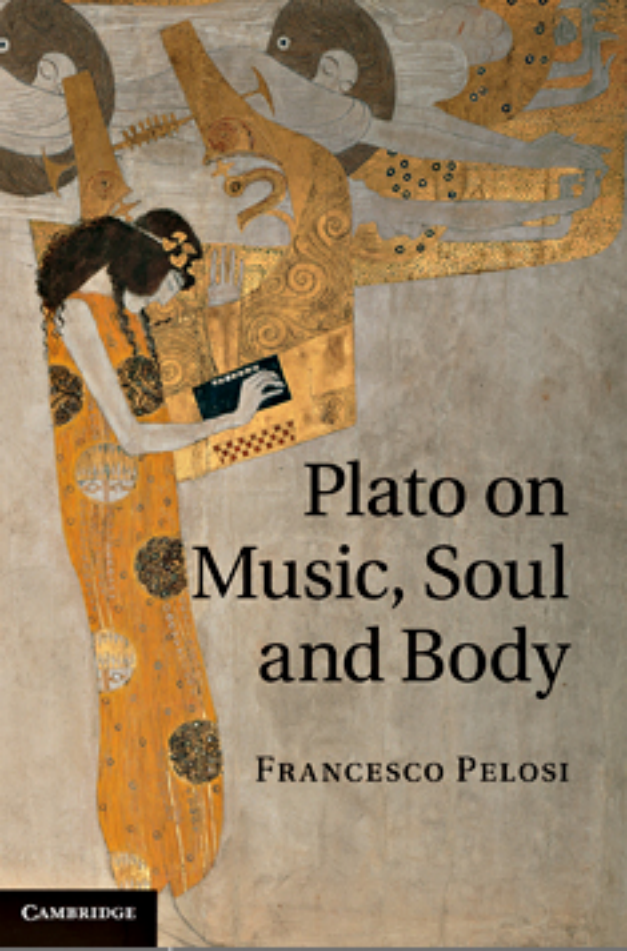

Plato on Music, Soul and Body

Francesco Pelosi

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PLATO ON MUSIC, SOUL AND BODY

Plato's reflection on the relationship between soul and body has attracted scholars' attention since antiquity. Less noted, but worthy of consideration, is Plato's thought on music and its effects on human beings. This book adopts an innovative approach towards analysing the soul–body problem by uncovering and emphasising the philosophical value of Plato's treatment of the phenomenon of music. By investigating in detail how Plato conceives of the musical experience and its influence on intelligence, passions and perceptions, it illuminates the intersection of cognitive and emotional functions in Plato's philosophy of mind.

FRANCESCO PELOSI obtained a Ph.D. in philosophy at the Scuola Normale Superiore in Pisa. His main field of research is the relation between music and philosophy in ancient Greece.

PLATO ON MUSIC, SOUL AND BODY

FRANCESCO PELOSI

Translated by Sophie Henderson

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A mia madre, in ricordo di mio padre

Introduction

MUSIC AND PHILOSOPHY

In the *Phaedo* (60d–61b), Socrates confesses that throughout his life he had interpreted the oneiric warning: 'practise and compose music' (*mousikēn poiei kai ergazou*) as an invitation to practise the 'greatest music' (*megistē mousikē*) that is philosophy. Now, however, close to death, he decides to consider the words from his dream in a different light. Not without a certain unease, he engages in 'popular music' (*dēmōdēs mousikē*), which concerns poetry and myth, rather than philosophy and 'arguments' (*logoi*). So it is that the *Phaedo* opens with two entirely different meanings of music: music in the commonly accepted sense and music that, in the very uncommon sense, is identified with philosophy.

For anyone embarking on a discussion of music, soul and body in Plato, the dream scene gives some indication of what such an analysis involves. In the first place is the need to take on board, as far as possible, the meanings and value of a music that is no longer 'popular'; in the second place, the need to find characteristics that are still less clear, of the highest form of music that is assimilated to philosophy. With these two tasks – finding the significance of *mousikē*, and the significance of *mousikē* that has undergone Platonic investigation – we get to the heart of the analysis that Plato dedicates to the musical phenomenon and its relationship with philosophy. Socrates' interpretation, in which to make music, in the deepest sense, is to philosophise, might sound like an indication concerning the essence and characteristics of an analysis of music in Plato to treat music in Platonic reflection means treating numerous philosophical questions.

The presence of musical discussion in the dialogues is weighty and significant. Plato reflects on the phenomenon of *mousikē*, going from the analysis of technical, practical and theoretical aspects to a meditation on the significance and values that musical experience brings about. The

phenomenon indicated by the term *mousikē* is considered in its various aspects: instrumental, vocal and choreutic. Nor does Plato omit to examine technical and practical issues in an effort to organise, precisely and somewhat meticulously, musical life in the ideal State. Thus, in a passage in the seventh book of the *Laws* (812d–e), Plato dwells on the description of a lyre lesson, with a wealth of technical detail, and in numerous other passages, he talks about *harmoniai*, instruments and the practical aspects of music. Even more worthy of consideration – and certainly more recognised – is the contribution that Plato makes in describing the ethical, paedeutic and philosophical values traditionally linked to musical experience in ancient Greece. Many of Plato's musical observations have been interpreted as examples of the characteristic ancient Greek way of understanding and living music, as a phenomenon with extraordinary persuasive and ethical qualities.

So it is entirely understandable that a scholar of ancient Greek music should be interested in these passages. The reconstruction of *mousikē* is based more upon literary and philosophical evidence than musical documents: in that sense, the Platonic dialogues offer an invaluable fount of information and many lines of inquiry. The importance of Plato for our knowledge of ancient Greek music is witnessed by the space dedicated to the Platonic passages in works that take on the study of *mousikē* from various points of view.[1] Obviously, given the philosophical intentions with which Plato treats music, use of the Platonic passages to reconstruct the physiognomy of *mousikē* requires extreme caution: Platonic discussions on music can only be understood in the context of the general philosophical argument in which they appear. The knowledge of philosophical theories is essential in an analysis of this type, in order to shed light on musical questions.

Although to date less recognised for their philosophical value, the numerous Platonic passages about music undoubtedly command the attention of the philosophy scholar, and clearly not only for their quantity. They are rooted, in a complex and profound manner, in the philosophical structure in which they are to be found. And yet, although it would be difficult for Plato's interpreters to shirk analysis of his principal references to music, the philosophical importance of Platonic reflection on music has not been sufficiently well considered. This is a striking omission: the book will argue that it is possible to offer a reading of some of the principal themes of Platonic philosophy in the light of musical reflection.

[1] Lippman 1964; Anderson 1966; Comotti 1979; Barker 1984; 1989a; West 1992.

In a sense, one would need to take the opposite direction to that employed by the scholar of ancient Greek music: we should be using reflections on music to bring light to philosophical questions. Reflections on the phenomenon of music suggest a point of view that is new and intriguing, although often 'uncomfortable', from which to scrutinise some of the principal themes of Platonic thought. That it is not a comfortable vantage point is due to the fact that the instrument of inquiry does not have a precise form and requires a continual effort to define its boundaries. I do not refer solely to the difficulty of finding the usage and multiple meanings evoked by the term *mousikē*. I refer, above all, to the difficulty of understanding how Plato makes his own the meanings and values traditionally connected to the musical experience, re-elaborating and re-using them. Therefore, although this study is essentially directed towards an inquiry into philosophical questions, it would be reasonable to expect some results in the field of study of ancient Greek music.

My intention is to demonstrate that Platonic reflection on music provides a useful opportunity to reread the mind–body question in Plato. This will allow us, with relatively new instruments, to plumb the psychological and epistemological fields of the theories of the constitution of the soul and its relationship with the body, and the relationship between sense-perception, emotion and thought. It is a field that, in recent years, has been the object of lively interest on the part of many scholars, who are trying to go beyond the traditional and reductive paradigm of Plato as a rigid dualist. Plato's philosophy of mind, interpreted in this perspective, offers ideas that can prove profitable in the modern debate on the mind–body problem.[2]

PLATO'S PHILOSOPHY OF MIND

The noted distinction between epistemological and ontological dimensions of the sensible and the intelligible, of the body and the soul, would appear to be difficult to class as anything other than dualism. Obviously such a simplification does not do justice either to the complexity with which a Platonic theory of the mind is developed, or to the changes that run

[2] On a philosophy of mind in Plato, cf. Lovibond 1991. The terms in question are not the same in Plato and modern debate: *mind* indicates a narrower domain than *psychē*, to which belong not only intellective, cognitive, emotive and perceptive processes but, more generally, the vital processes; the *psychē* also being a principle of life (Carone 2005b, 228; Trabattoni 2007, 307). In the current work I tend to use the expression *mind–body* with a certain liberty including in the question encountered by Plato.

between the dialogues. Through a study which takes its principal steps in the *Phaedo*, the *Republic* and the *Timaeus*, Plato redefines the outlines and contents of the soul. Some noticeable changes are made to the setting out of the theme of the mind in the course of the dialogues, with a particular relevance in the later stages. The theory of a dualist Plato must take these reflections into account.[3] On the other hand, attempts to contest the paradigm of Plato as a rigid dualist must contend with various passages in which the affirmation of a separation and independence of the soul from the body seems quite clear.

With his vision of an invisible and incorporeal soul, similar to the divine and not to the material into which it is immersed (79a–c), the *Phaedo* would appear to support strongly the idea that Plato champions an extreme dualism. The idea that the *psychē*, in the disorientation of the permanence in the body, reconstructs its certainties through a retreat into itself and a distancing from the corporeal dimension (65a–66e) is perfectly in line with a dualistic vision. This dualistic vision, which imbues the *Phaedo*, must be considered in relation to the dramatic context of the dialogue characterised by a strong metaphysical tension and a constant attention to the immortality of the soul (hence of a *psychē* considered in its rational nature). Nonetheless, in this dialogue too, it is perhaps possible to find important ideas for a different theory of the relationship between soul and body. For example, the theory of *recollection*, in which learning is a remembrance of the soul that holds on to traces of its extra-corporeal life, is closely connected to a dualistic and innate vision. And yet, in the excerpt from the *Phaedo* (72e–77a) that treats such a theory, not all aspects seem to be able to be tied to a clear dualism.

In 75a–76a, Socrates explains how, under the stimulus of sensible information, the soul manages to make the memory of universal concepts re-emerge, as equal in itself.[4] Now, the relationship that is instituted in this passage between perception and rational activity is noteworthy, and not only because the senses are recognised as having a relevant role for the good of the soul, once the soul is introduced into a sensible dimension (this theme of the usefulness of the senses widely characterises some reflections in the late dialogues on the soul–body relationship, above all those in the

[3] Cf. for example Ostenfeld's analyses (1987, 26–7, 33–4, 69–70) where he argues that Plato moves from a dualism of things, appreciable in dialogues such as the *Phaedo* and the *Republic*, and only in part comparable to that of Descartes, to lead, in the late dialogues (above all in the *Timaeus*), to a dualism of attributes. Cf. Carone's contrasting position (2005a, 211 n. 68; 2005b, 230–1, 233–4), according to which in the later dialogues neither dualism of things nor dualism of attributes is present.

[4] Rist 1964; Dorter 1972; Wedin 1977; Ackrill 1997.

Timaeus, as we shall see). Let us consider the idea that thought derives from sensation (75a5–8, a11–b2). A reality must be gathered by the senses, so that it can then be thought and brought into the picture – which is exclusively mental, intelligible and innate – that assumes the form of a memory in the embodied soul. The idea that the soul can use the senses to 'return home' seems to presuppose the idea that a valid epistemological dimension can exist which is practicable in the mind and body together.

It is true to say that the idea that the senses deceive is often present in the *Phaedo* (65–6, 83a), but there appears to emerge in the mechanism of reminiscence, at least as a cue, the possibility that cooperation between the senses and the *psychē* leads to true knowledge. To recall the most famous form of dualism in modern times, a form with which Platonic theory is often associated (perhaps not without grounds but not necessarily correctly)[5]: in *Phaed.* 75–6, what the senses register can be deceptive like the product of an evil genius (and indeed what is registered by the senses certainly is deceptive), but it is not empty of all epistemological value, if it can act as a stimulus able to solicit memory of extrasensible content in the mind. In some ways, the *Phaedo* passage that we have just cited seems to indicate an opposite direction with respect to that noted by the reflection with which Descartes, through the assault of Methodological Doubt, destroys the world of perception, rebuilding the fundamentals of existence and knowledge inside the spirit. At *Phaed.* 75–6 the reconstruction of an ontological and epistemological certainty does not pass through the elimination of that which can be consumed by doubt, like the data of the senses, but through its use on the part of the mind.

Notwithstanding its dualistic stamp, the *Phaedo* thus presents ideas for a different vision of the mind–body problem.[6] But other dialogues offer many more numerous and consistent reasons to keep open the case for considering the mind–body question in Plato. Such reasons could perhaps lead not only to a reconsideration of the theory of a Platonic dualism, but also to suggest hints for theories that are independent of the Cartesian model. The psychological and epistemological theories that Plato arrives at, above all in the later phases of his writing (for example, in the *Philebus*, the *Theaetetus* and the *Timaeus*), show models of relationships

[5] On the possibility of defining Platonic dualism as 'Cartesian', cf. Ostenfeld 1987. On Platonic themes in the Cartesian consideration of the relationship between mind and body, cf. Voss 1994.

[6] For other passages in the *Phaedo* that support the arguments of those who question the thesis of Plato's rigid dualism, cf. Carone 2005b, 229 n. 9. For a consideration of the mind–body question in the *Phaedo*, with attention to aspects such as the contamination of the soul by the body, cf. Sassi 2007, 276–7.

between soul and body, marked more by a strong interconnection than by a dualism.[7] Seen in its complexity, Platonic theory could perhaps offer modern research on the types of interaction between mind and body the occasion for profitable comparisons, as indeed has already occurred with Aristotelian theory.[8]

PLATO'S PHILOSOPHY OF MUSIC

In what way can Plato's reflection on music illuminate these themes? Why should it be reasonable to expect anything from an analysis of Platonic psychology if that analysis is based on references to music? Plato does not seem to have been immune to the attraction that music exercises due to the particular ways in which it touches and involves both the body and mind. Platonic reflections on music appear to be a genuine attempt to understand and manage musical communication. A bid to explain and to use, for political and philosophical ends, what happens when one lives a musical experience shows the way in which Plato conceives entities and mechanisms involved in the reception of music: soul and body, intellect, emotions, passions and perceptions.

In Platonic reflection the authentic interlocutor of music is the soul. Plato appears to give his constant attention to the particular ways in which music can touch and condition the *psychē*: the opportunity not to be missed is that of using the musical experience as a type of philosophically oriented formation and education of the *psychē*. Music contributes to the philosophical cure of the soul as a very efficient manner of treating a vast array of psychic responses ranging from perception, emotion and desire to rational content. It is evidently a question of a powerful and versatile instrument, and one that is highly appropriate when dealing with a complex reality, the soul, the cure of which requires the use of diverse stimuli and processes. The analysis of such a use reveals some aspects of Platonic reflection on the structure of the soul and this is the first line of inquiry, in the area of Platonic psychology, brought to light by his reflections on music.

Thus, philosophy makes use of music to take care of the soul, but this occurs while (and because) the soul is bound to a body. The task for

[7] Carone 2005b.

[8] Cf. Ostenfeld 1987, 31, 49–59; Carone 2005a, 5; 2005b, 231; Fronterotta 2007a, 90 n. 4. For an example of modern theory influenced by Aristotelian theory, see Putnam's functionalism, understood by him as a development of Aristotelian theories. On the debate that developed around the functionalistic interpretation of Aristotle, cf. Burnyeat 1992; Nussbaum and Putnam 1992; Berti 1998.

which philosophy allies itself with music, is the challenge presented by the difficult conditions of the embodied soul. Having a concept of music as an experience that is *the soul's own* does not exempt Plato from considering the involvement of the body and the way in which this happens: on the contrary, he is obliged to define, employ, then know and understand, the reactions of the body to musical stimuli. And this for at least two reasons, which are connected to one another: because it is precisely the disorders caused to the soul by its connection to the body that music is attempting to resolve; because it is only by being tied to a body that the soul can be cured by music (both of which reasons are present in the *Timaeus*, as we shall see). Seen from a more general perspective, music looks after that psychophysical ensemble that is the human being: musical experience, *the soul's experience*, is also the occasion on which the soul must look for a profitable relationship with the body. Thus the second line of inquiry is evident – woven into the first – that comes from a study of Platonic psychology through reflections on music. Platonic investigation of the phenomenon of music would seem to offer an ideal situation – what we might call *laboratory conditions* – in which to study the structure of the soul and the relationship that it maintains with the body.

As we shall see, for Plato, music is not only useful, but also dangerous. The particular ways in which music addresses the body and *psychē* are also sources of disquiet and apprehension. These permit Plato, on the one hand, to use, to great advantage and with flexibility, music as a philosophical manner of intervention on the *psychē* and the psychophysical ensemble that is man; on the other hand, they compel him to exercise extreme caution in the treatment of the phenomenon of music, and to take up positions that do not always form a homogenous picture. So it is that in the analysis of music, Plato seems to take a subtle line, halfway between two tricky areas. On one side there is the risk of making a purely sensual experience out of music, thus removing a great part of the formative potential of the musical experience itself. This is the risk he discerns in a use of music that is not directed by the idea that music can and should form the individual, at different levels. Plato endeavours to avoid this risk, by describing, with as much care as possible, how one should and should not *make music*: from the description of the *harmoniai*, of instruments and rhythms that should or should not be used in the ideal State (see *Resp*. III and *Leg*. II and VII), to the description of the correct and incorrect way to tackle the science of harmony for future dialecticians (see *Resp*. VII).

However Plato's philosophy of music runs perhaps a greater, although less manifest, risk. Plato's view of the body involved in music is one that

is essentially directed at the soul, and the attention directed at the body and soul in the reflection on music are not equal, either in quantity or quality. He reflects on the sensible component of music, but in the area of a reflection for which music is an experience of the soul. In an attempt to avoid music becoming an affair of the senses, Plato runs the risk of confining it to a *mentalist* dimension. A similar danger seems to appear in the seventh book of the *Republic*, when all contact is lost with the sensible component of musical experience. We encounter an analogous risk emerging in the *Timaeus*, where the fundamental explanation of the ways in which music involves *psychē* and body seems at times to cut out the sensible dimension.

The research undergone here is made all the more promising by the necessity to confront certain particulars of the musical phenomenon evoked by the term *mousikē*.[9] Firstly, the well-noted fact that the term *mousikē* does not usually indicate solely instrumental music, but the union of diverse expressive forms, including music, words and movements of the body. This enlarges the panorama of our research to include numerous possible forms of interaction of sensibility and the *psychē* – but it will not always be possible, in the current study, to follow these lines of inquiry. For example, I will not spend time on a reflection on the simultaneous involvement of sight and hearing and the psychic components in the fruition of dance. I will concentrate principally on the universe of hearing and the component of sound in *mousikē*. However, the understanding of the mechanisms with which music implicates the soul and body according to Plato could not leave out a consideration of the conviction, typical of ancient Greek culture, of the high communicative powers of music. And in such a consideration one could not avoid paying a certain amount of attention to the different expressive and representative mechanisms of the elements of *mousikē*.

In this research there is an ulterior element of complexity with regard to an imposing tradition, only in part reconstructible, that recognises exceptional powers in music. In this context, certain types of interaction between the soul, body and music seem to be taken for granted. The difficulty in some respects cannot be eliminated, in that it is cultural. In order to appreciate the dynamics of a musical communication and the way in which they are explained and employed, it is necessary to be part of the community in which that communication came into being. To

[9] In general, in the present work I tend to use the words *music* or *mousikē* with a certain flexibility, where the context allows one to gather the sense attributed to the terms without misunderstanding. I do however make the necessary distinctions where it is essential for the correct understanding of the passages.

borrow an apt expression from an ethnomusicologist whom we will have the opportunity of quoting again later: to create ancient Greek music, you must *be* an ancient Greek, sharing the ancient Greek social and cultural life from early childhood.[10] The emphasis that Blacking lays on the social and cultural aspects of the creation and reception of music seems to me to be extremely apposite in a study of *mousikē* and a manner of absorbing it, as characteristic as it is obscure: a manner that is tied to the ethical capacities of musical experience. I do not believe it would be advantageous to deceive oneself as to the possibilities of retrieving too many meanings from what some, in modern times, with formalistic fury, do not hesitate to define a 'pathologisch Ergriffenwerden'.[11] However, it is possible that, in this field too, the effort to understand required to employ musical arguments in the study of the mind–body question, contributes somewhat to the understanding of certain meanings of *mousikē*.

A JOURNEY THROUGH MUSIC AND PHILOSOPHY

As we have said, music seems to offer a valid point of view in the study of the mind–body question in Plato, in as much as it presents itself as an experience in which sensible and intelligible content reaches the soul by means of the body. How this process comes about and exactly which psychic and physical components are involved are the questions that will be considered in the present study. Nonetheless, with a certain assurance and as a preliminary step, it would seem possible to make out two different areas in Platonic reflection on music: sensibility and rationality.

In a series of passages, Plato examines the possibility of using music for the cure of the *psychē*, with particular attention given to the components most linked to the body and senses; the characteristics of the recipient determine the processes through which such treatment is made. Thus we can interpret the elaboration of the ambitious project of a musical life in the ideal State that takes shape in *Resp*. II–III and in *Leg*. II and VII. Music is conceived as a means of curing the soul, but a soul that has notable implications with the body. It concerns moulding a young *psychē*, that does not have a well-developed rationality and therefore is at the mercy of the body's needs; it also concerns leading or restoring an adult *psychē*, exposed to the negative conditioning (including musical!) encountered in life, to a correct equilibrium, which permits it to properly manage the connection with the sensible dimension. Therefore, in both cases, it concerns working

[10] Blacking 1973, 98, referring to Venda music. [11] Hanslick 1854, 77.

on the shady areas of the *psychē*, where the non-rational needs lie. The techniques used to reach, solicit and condition these psychic tendencies must, therefore, make use of non-rational channels, and in this phase Plato takes advantage of the powerful capacity of music to communicate without logical mediation. Here we will find ourselves recording and analysing Plato's first reaction to the risk that music be received and appreciated only, or for the most part, in its sensible component: a forceful reaction that led to the meticulous project and rigid control of an ideal musical life, that is modelled on ideal content.

Two instances describing the music–soul interaction seem to me to present interesting grounds for reflection on the soul–body dynamic. The description in terms of a physical action (the action of the *moulding* of the soul on the part of music, for example) and in terms of a magical action (musical enchantment). To begin with, I have examined a passage from the *Laws* (790c–791b), which seems to contemplate the possibility of intervening, with musicality and rhythm, on the emotivity, otherwise unmanageable, of very small babies. The philosophical value of a lullaby lies in the possibility of its re-establishing the correct psychic movements without appealing to reason, in a *psychē* that does not have (or no longer has, following embodiment) a functioning rationality.

In a treatment of Plato's reflections on musical *paideia* in *Resp*. II–III and the *Laws* II and VII, the longest and most demanding analyses will be those dedicated to the theories of *ēthos* and musical mimesis. As indicated, such theories constitute difficult testing-grounds and at the same time precious opportunities for the numerous questions that they provoke around the interaction of music, body and *psychē*. It seems reasonable to me to suppose that the body of convictions known as 'the theory of musical *ēthos*' should undergo a deep examination and in some sense be remodelled by contact with Platonic psychology. It is necessary to grasp the psychological dynamics that Plato considered operative behind the traditional conviction that music has the power to influence human behaviour. In the attempt to comprehend why music can make itself a vehicle of precise ethical values and instil them in the soul, there often arises the need to remember what kind of complex musical reality we have before us and to try to distinguish between the artistic forms that make it up and their own expressive and representative faculties.

Beside the musical treatment of sensibility, the analysis of an intervention of music on rationality would seem to be defined with a certain precision in two different reflections that I examine in the second and third chapters. In the *Timaeus*, when Plato endeavours to explain the profound benefits of

the art of music for man, he appears to be referring to the use of music as a specific cure for the rational soul. *Tim*. 47c–e presents the intervention of music on the rational *psychē* as an activity on a structure that has a delicate harmonic equilibrium. The suggestive image of a soul that, through music, retunes its circles, upset in their reciprocal rapports by contact with the body, presents two difficulties: comprehending the description of music's direct and profound action on the soul, and understanding the role taken on, in the reception of music, on the one hand by the act of perception, and on the other by the *psychē* in its various components. In a reading of *Tim*. 47c–e, through an analysis of psychology and physiology in the *Timaeus* and the other passages on music in the dialogue, I will endeavour to clarify the psychophysical mechanisms hidden within the *musical* movements of the rational soul. It will be a question of evaluating the nature of entities like the *psychē*, the body and music, and the possible interactions between them, and to understand how the intervention of music conditions the cognitive and emotive mechanisms of the *psychē*. It seems to me that the interpretations that underline the close interconnection between soul and body in the *Timaeus* and lay emphasis on the spatial nature of psychic movement find various reasons for confirmation in the reflection on music within this dialogue.[12]

More linear, although not less problematic, is the further consideration of an intervention of music on rationality. It concerns the treatment, in *Resp*. VII, of the science of harmony as a discipline that is propaedeutic to dialectic. The condition with which music, as harmonic science, is admitted into the preparatory curriculum for future dialecticians is that it makes itself a science of the conversion from the sensible to the intelligible. It is without doubt on this occasion that there emerges, in the most obvious manner, the balancing act to which Plato is confined, when considering and opportunely using the sensible and intelligible components of music. Furthermore, it is on this occasion too that, most clearly, the equilibrium breaks, in favour of the intelligible component, and contact is lost with the sensible dimension of music. This does not constitute a problem just for Glaucon in the *Republic*, or for future dialecticians engaged in understanding the type of study Socrates is prescribing, but also for our analyses.

To avoid this *impasse* we will take another route through the dialogues, following sound and metaphors of sound: we will analyse the psychophysical mechanisms with which music is received and understood, and the *musicality* of the psychic structure (ch. 4). The return to the dimension

[12] Ostenfeld 1987; Sedley 1997; Carone 2005a.

of sound will pass firstly through the consideration of those passages in which Plato pays particular attention to acoustic phenomena and perceptive mechanisms. The analysis of the passages in the *Timaeus* (67a–c, 80a–b) in which Plato reflects on some acoustic stimuli – single sounds and sounds of different pitch, produced simultaneously – and on the perceptive mechanisms necessary to receive them creates a picture that shows the relationships tying sound to the hearing process, and the relationship between body and soul in acoustic sensation. But once again, the facts do not present themselves at all easily, raising various questions about the ways with which the mental and corporeal dimensions enter into relationship with each other. The reflection on sound and hearing makes up a part of the elaboration of a theory on perception, characteristic of the late dialogues, that carries important consequences on the relationship between sensible and sentient and on the relationship between body and *psychē* in the perceptive process. It seems necessary to me, taken up with the study of passages with a well-defined content in the sense of the theory of music, to analyse them not only in relation to the physiology and the psychology of the *Timaeus*, but also to the ancient acoustic theories, preceding and succeeding Plato, in the conviction that philosophical and musical theories can throw light on each other.

In the final part of the work I will attempt to recount the destiny of the notion of psychic harmony in Plato's work. To begin with the first occasion, in the *Phaedo*, where it appears to then be rejected, and end up with the description of psychogony in the *Timaeus*, passing by the musical metaphors of the *Republic*. Through the notion of psychic harmony we can run through the reflection with which Plato defines, with relevant differences from one dialogue to another, the structure of the soul, in parallel with the mediation on the relationship that it maintains with the body.

The description of the soul in terms of musical structures, characterised by an articulation of varied components, places an emphasis on the complexity of the *psychē*. Such an emphasis seems to augment over an ideal journey that goes from the *Phaedo* to the *Timaeus*, regarding the rational soul itself in this last dialogue. At this point, music no longer offers valid metaphors to describe the structure of the soul, but does offer the instruments to create it. The World Soul and the rational human soul of the *Timaeus* see the light through processes dictated by musical criteria: psychogony is at the same time a creation of music, and the structure, made by the orbits, of the soul is also a musical structure. We do not necessarily have to chose between a literal and a metaphorical reading of the

description of psychogony; we can adopt an intermediary approach. It is certainly not possible to give a philosophical explanation of all the strange operations that the demiurge carries out when creating the soul, and perhaps we are not even obliged to do so: psychogony too is, on the whole, a 'likely account', that cannot be paraphrased in a perfectly rational form (see below, Conclusion). Nonetheless, the description of the structure of the soul does not only refer to the 'cosmic soul's faculties of cognition and motion'.[13] The *material* construction of the soul in the *Timaeus*, although not significant in all its details, should be taken seriously,[14] in such that on the whole it carries a message of great importance in the Platonic reflection on the soul and its relationship with the body: the cognitive and kinetic faculties of the *psychē* have a spatial projection. And perhaps it is not by chance that Plato places music in the soul at the same moment in which he begins to think of the *psychē* as gifted with spatiality.

[13] Hackforth 1959, 20; Dicks 1970, 116–23. [14] Brisson 2007, 26.

CHAPTER I

Musical education of sensibility

The image of Plato on basic musical *paideia* is well known, and the utilisation of music in education is easily the most studied aspect of all the Platonic reflections on the phenomenon of music. Great attention has been paid to the interesting accounts – developed above all in the *Republic* II–III and in the *Laws* II and VII[1] – of a State music, a powerful instrument in forming and directing the emotivity and morality of citizens.

In this first chapter, we will analyse musical *paideia* in the *Republic* and the *Laws*, as we consider that it implies important psychological questions. The interaction between soul and body will be evaluated, for example, with respect to the particular condition of infants; there will follow an analysis of the description, in physical or magical terms, of the formative effect that music has on the soul and we will endeavour to characterise the physiognomy of the psychic interlocutor of music, or rather that part of the soul on which music chiefly acts. For most of the chapter, I will try to reconstruct the form that the *ēthos* theory assumes in contact with Platonic psychology and to clarify the psychological mechanisms that Plato held to be operative behind the idea that music conditions the character and represents mental states.

MUSIC IN EARLY CHILDHOOD AND MUSICAL EDUCATION

Well before going into the famous educative programme that, according to tradition (*Resp*. 376e2–4), provides for the practice of music and gymnastics, the infant in the Platonic State has already come into contact with music

[1] I tend to put these two treatments of music alongside one another, because their affinities seem to me of greater relevance than their differences. For an underlining of the differences: cf. Wersinger 2003, who among them lists the fact that the condemnation of 'female modes' is clear in the *Republic* while in the *Laws* there are many exceptions. However, it seems to me that, on one side, we are not in a position to understand precisely the distinction between male and female (below, pp. 47–8) while on the other, the contents of the music accepted in the *Laws* are the same as those admitted in the *Republic*.

and benefited from its effects. In the *Laws*, Plato sets himself the problem of methods for the education[2] of those who 'do not yet understand language, nor are yet able to try another type of education' (791e1–3). Evidently it is a question of a form of education that absolutely does not count on rationality, but the legislator cannot help considering it, since early childhood 'is not a small part of life to be spent well or badly' (792a4–7). Here Plato's answer moves from the observation that man has the habit of immediately using his voice, more than any other newborn animal: in this way he expresses pleasure or aversion to things through screaming and crying (791e4–792a3). Later musical education proper will teach that it is better to avoid tears;[3] in the meantime it is a question of trying to come up with a way to accustom the infant's soul to find the happy medium between pleasure and pain (792b–e). We can already note two important facts. The mental content which is being handled: the sensations of pleasure and pain; and the ways in which the handling is carried out: habit. In the infant 'the entire character' is formed 'through habit' (*dia ethos*, 792e1–2). It is musical education that will carry the task forward in a more complete manner, counting on a more mature psychic condition (below, pp. 20–8). But if music cannot completely steer the character of a child in the very early years of life, it can have a good effect on the elementary sensations.

In *Leg.* 790c–791b, Plato pauses to analyse the ancient practice of placating babies by rocking them and singing: a method that is analogous to that used by 'the women who officiate during the curative rites of the Corybantes'.[4] To send fractious infants to sleep, mothers do not hold them still, but continually rock them in their arms. Furthermore, they are not silent, but sing a tune: they enchant them, just as people taken by a Bacchic frenzy use the movement of dance and music as a cure.[5] It is in terms of movement that the placatory action of music is explained, because

[2] *Trephō* (to bring up, raise, nurture), more than *paideuō* (to educate), is tied to a physical dimension. Plato often uses both the verbs, referring to different phases of education (*Resp.* 445e2, 534d3–4; *Leg.* 788a1–2). On education of the soul as nourishment, see *Prot.* 313a–314b; *Tim.* 44b8–c1.

[3] The insistence on the rejection of lamenting – present in the *Republic* in the section on music that regards myths (387e–388a, 388d5–7, 395d8–e3) and in that regarding *harmoniai* with the rejection of the 'mournful *harmoniai*' (398d11–e5) – could then justify itself precisely with the fact that education, on this front, must set itself against a natural propensity in man to express himself through lamenting. Cf. *Resp.* 606a3–b8 on the mournful element of the soul and desires that nurture by nature.

[4] 790d4–5: *hai peri ta tōn Korybantōn iamata telousai*. Here using Linforth's translation, 1946, 130–1.

[5] 790d2–e4, 791a5–b1. On the use of music and dance in Corybantic rites, cf. Linforth 1946; cf. Lippman 1964, 50, where the author notes that Plato tends to explain and generalise the 'orgiastic effects' of music in order to apply them to the educative process (cf. also Moutsopoulos 1992). For Ménissier (1995, 363 and n. 4) the Platonic references to the musical cure of the Corybantes leads one to consider the hypothesis that Plato regarded the 'physical' action of music on the soul (the author also cites the passage in the *Laws* in question). Cf. *Ion* 536b–c where Ion's soul – like a Corybante, sensible only to the song of the 'god' that possess him, Homer – dances to the sound of that poetry.

movement is also describing the psychological situation of what is being worked on. The disquiet of infants is similar to the madness of the Corybantes, because both of the emotions carry a fear, due to a condition of weakness in the soul (790e8–9): such a condition is an internal movement (*kinēsis*), triggered by fear or madness. The musical remedy consists in producing an agitation, an external movement that dominates the internal one. The consequence of this domination is the restoration of calm in the soul and the normalisation of the heartbeat, perturbed in both conditions.[6]

It seems that the expressive capacity of music can even reach and help a soul that is incapable of using any rational instrument, but is already shaken by violent sensations. In this passage we find the almost indisputable idea that it is the sensible dimension that causes problems; but we also find, more relevantly, the idea that the same dimension can come to the aid of the infant. It is not by chance that Plato defines the effects of singing and rocking on the souls of infants as enchantment:[7] there is a completely passive reception of music that works in an analogous manner to a magic formula. It is more a question of abandoning oneself to music than listening to it: at this stage it is not the words, nor even the harmony that influences the soul, but the rhythm (for infants in the form of rocking, for the Corybantes, in dance) and the musicality of a lullaby or a melody played on the *aulos*. In this respect, it is worth noting that the parallel with the Corybantes leads Plato to consider the positive effects of music that he opposed elsewhere (where, one might say, music can begin to *speak* to the soul): the irrational music of the *aulos* and of Phrygian harmony (below, pp. 45–6), a music that cures madness with madness.[8]

The mothers in *Leg.* 790c–791b counter movement with movement, not stillness. The first term used to describe the external movement is *seismos*: meaning a shaking motion, energetic because it must oppose and win over the internal movement of emotion. It is likely that the intensity of external movement must be in proportion to that of the internal movement for the mechanism described to function.[9] The description of the process as

[6] 790e9–791a6. The same psychophysical reactions characterise the condition of Alcibiades confronted with the Socratic dialectic (*Symp.* 215e1–4): he too is similar to a delirious Corybant. It is interesting to note that these are the effects of a dialoguing that is assimilated to *aulos* music and is described in terms of enchantment. For an analysis of this passage in relation to Platonic reflections on music, see Pelosi 2004; 2006a, 17–20.

[7] 790e1–2. The verb that here indicates the action of enchantment of infants refers to the music of the *aulos*, also predominant in Corybantic rites; in general the major psychophysical effects are recognised in *aulos* music: to carry out *kataulein* on someone means, metaphorically, to enchant them (West 1992, 33, 105–6). On musical education of the sensibility as enchantment, see below, pp. 26–8.

[8] Linforth 1946, 134.

[9] Cf. *Tim.* 88e2, where, in the context of corporeal movement, it mentions a measured shaking (*metriōs seiōn*). Cf. Moutsopoulos 1959, 105 n. 2 and 2005, on the importance of movement in

the ruling of external movement over internal (791a2: *kratei*, a3: *kratēsasa*) shows that there is indeed a real conflict occurring. But it is not clear which factor determines the victory of one movement over another: a certain intensity seems necessary in order that the external enters into competition with the internal, but ultimate victory seems to be determined by the characteristics of the external movement.

Notwithstanding the apparent simplicity with which the process is described, various questions arise. Firstly it is difficult to compare a psychological state to a physical reality, under the category of movement: the movement of an agitated soul seems different from the movement of music. Such an aspect cannot be overlooked since the interaction between music and the *psychē* seems to explain itself only through the notion of movement. On the other hand, we note that the work of music described in *Leg*. 790c–791b is located on a psychophysical level: sleep and the normalisation of the heartbeat[10] are consequences of an interior restored to calm, but also signals of a renewed equilibrium between soul and body. An understanding of the psychological cure proposed here requires an analysis of the mind–body rapport in the child and an evaluation of the work of music, in physical and physiological terms.

Shortly before describing the musical care of children, Plato points out the good that the body draws from physical movement: all the shaking and the motions that do not tire, be they produced by the body itself, by means that oscillate – the sea or horseback – or from other bodies (789c7–d7). Even in the womb, the baby can obtain benefit from the mother's movement, to whom Plato therefore recommends walking 'to mould the coming baby as though it were of wax'.[11] But physical movement seems to help the soul too (790c5–d2, cf. 791c4–6): for the good of the body and

Leg. 790 and in general in Platonic reflections on music, as a link between 'matérialité de la nature du son et la spiritualité de ses effets sur l'âme'.

[10] According to Moutsopoulos (1959, 103 n. 3), it is not about cardiac contraction and dilation, but oscillatory movements: the heart leaping in the chest and brought back to its normal position by the effects of calming (the term *pēdēseōs* at 791a5 could equally indicate the beat as the leaping, and both phenomena are compatible with a condition of agitation, due to fear or madness). Nonetheless, the idea of rhythmic movement, associated as much with Corybantic dance as with rocking a baby, seems to me closer to the idea that music brings regularity to cardiac rhythm and therefore that the discomfort regards the pulsations. It is interesting to note that the Alexandrian doctor Herophilus, famous for his study of the heartbeat and its measurement, develops precise analogies with musical rhythm, with differences in relation to age. In *Synopsis de pulsibus*, attributed to Rufus of Ephesus (177), we read that Herophilus thought the newborn's pulse to be *alogos*. However, this testimony is difficult to interpret since Herophilus finds the newborn's pulse itself to be 'the first unity of perceptible time' (183): although systoles and diastoles are minimal, they can be expressed in a 1:1 ratio, hence in a *logos*. Cf. von Staden 1989, 276–82; Pigeaud 1978.

[11] 789d8–e3. Cf. 792e2–7, where Plato looks into directing the pleasure and pain of very small children, expressing the need to keep pregnant women from excessive pleasure and pain: in some way the care of the body and soul of an individual begins prior to birth.

soul of infant children, the ideal would be to live in perpetual oscillation as if at sea; the rhythmic movement of rocking is an effort to reproduce a condition as close as possible to this.

The reference to oscillation conveyed by the sea appears in the *Timaeus*. The theories on movement, in this dialogue, can shed light on *Leg*. 790c–791b.[12] In *Tim*. 89a1–8, with regard to 'the purification and restoration of the body', Plato refers to the effect obtained 'through the rocking of navigation'. It is a less efficient remedy than gymnastics, since it is always preferable for a body for the movement to come from itself rather than an external source. Nonetheless, in *Leg*. 789c8–d5, where the objects of cure are infants, passive movement – that is, movement conveyed by a foreign body – is considered an extremely useful remedy. Gymnastics (like music), actively carried out, will enter the infant's life later on, but in movement and song for infants we can see a sort of elementary anticipation of gymnastic–musical education. It concerns a system of stimuli for an individual still unable to take an active part in the care of his own body and his own soul, and for whom, furthermore, it is much more difficult to conceive a clear distinction between physical and psychic care. Once more the *Timaeus* provides the key to the best reading of the particular psychophysical condition of very small babies, on which there is an attempt to intervene in the *Laws*.[13]

In 42e–44c the creation of a mortal being is described as the work of the gods. The most delicate operation, and also that destined to create the most serious consequences is the assembly of the body, 'that suffers influxes and effluxes', with 'the revolutions of the immortal soul' (43a4–6). The moment described here – that of embodiment, the start of a difficult rapport between soul and body – gives an idea of the discomfort that characterises the human being at birth. Embodiment is immediately seen to be the instigator of a dramatic clash of movements: *periodos* indicating a circular, uniform movement, while *epirrytos* and *aporrytos* allude to an irregular movement, a sort of flowing.[14] Neither the soul's movements

[12] Boyancé 1936, 178; Moutsopoulos 1959, 104.

[13] See *Leg*. 672b8–c6: '. . . every living being, at the moment of birth, lacks, in quantity and quality, the intelligence that he should have when adult; so, over the period of time in which he has not yet acquired his own intelligence, he frolics and cries in disorderliness, and when he can stand he will jump in an unseemly manner'. In the *Laws*, such an approach is at the basis of the use of music and dance, see below, p. 50.

[14] Immediately after, to indicate the state of the circles of the soul at the mercy of disordered movements, Plato describes them as being 'immersed in a great river' (43a6); the same movement of sliding returns in 43c8.

nor those of the body manage to take the upper hand[15] and the result is that the human being begins to move 'without order or logic', in the six directions (43a7–b5). The body is the intermediary through which the movements, produced by contact of the body with external agents, reach the soul and upset it: such movements are the sensations. For the soul they constitute an ulterior, powerful factor of shaking that adds to the permanent confusion derived from its attachment to the body (43c7–d2). The action carried out by the movement of the senses on the soul is violent and is defined in terms of shaking (43d1: *seiousai*, cf. *Leg*. 791a1: *seismon*). Every single sensation seems to cause a jolt to the soul, which already finds itself in a generally perturbed condition due to contact with the body. The impact of physicality on the *psychē* has devastating effects: the soul's circles, tuned, furthermore, according to precise numerical and musical proportions (below, pp. 185–95), are gravely damaged (43e1–2), to the extent of losing their rationality (43e3). The loss of intellectual judgment is the dramatic outcome of the joining of soul and body (44a7–b1).

The dominating element in the very small baby is something analogous to this disorder, and we may consider the baby's fear in *Leg*. 790c–791b as one of the many sensations that exacerbate a situation that is already very unstable. In the absence of a command of reason – a situation that makes the parallel with *ekphrones* of the Corybantic and Bacchic rites entirely fitting – there corresponds a strong stimulus of the sensations and emotions, of the elements of the soul chiefly tied to the corporeal dimension. The intention of the legislator is to throw light on the obscure phase in which the soul suffers the demands of the body and reason cannot control the situation. It concerns, therefore, dealing with the soul and body at the same time, the body to cure the soul as well. The absence of measure – characteristic of the infantile condition (Laurent 2000, 43–6), as *Tim*. 42e–44c suggests – regards as much the soul, deprived of its original equilibrium, as the relationship between the soul and the body, still lacking a correct proportion. Musical movement helps instil regularity and measure, through elementary stimuli that act on the body and the soul. The remedy enters by the same route through which the disorder was introduced: sensation. Music must also impart a disturbance, to overcome the disturbance of emotion that has stormed the soul. Music begins to

[15] 43a6–7: *out'ekratoun out'ekratounto*. Thus, in this passage too the idea appears of a contrast between movements and of a domination of one movement over another. Again an absence of domination characterises the structure of the soul within: the loss of equilibrium between the soul's circles is also the loss of a hierarchical order that translates itself into the loss of control over movement.

work on man's life in the dimension in which the soul and body meet, and to resolve the problems born of this meeting.

So early infancy represents a critical phase in the life of an individual, but the extreme malleability that marks this period also provides the educator with real possibilities of intervening.[16] For a little longer, the philosopher can count on this plasticity: the educative programme based on music and gymnastics takes full advantage of this aspect. In *Resp*. 377a12–b3, before beginning to outline musical education, Socrates observes that the imprint that is to be conveyed, shapes and penetrates above all when an individual is young and soft. The image of mothers walking to mould the bodies of their as yet unborn babies comes to mind (above, pp. 17–18), but here what can be shaped like wax is the soul, and mothers and nurses are told to tell the right fairy stories to shape the soul with tales rather than shaping the body with the hands (377b11–c4). The work of myth – the first aspect of *mousikē* to be treated and first instrument in the forming of the soul – is introduced in terms that refer to a physical dimension: the introduction of opinions within the soul is like the working of a malleable material in relation to a *typos*. The term indicates the imprint, but also a model, a shape and the products of the plastic arts; it recurs frequently in the treatment of myth (377c8, 379a2, a5, 398b3, d5) to indicate the character to which the tales must conform. To comprehend the process of formation of the soul through the myths means understanding how a rational content – the *typos* of a tale, the concept that fixes the form and contents of a myth – becomes the imprint – the *typos* impressed on the soul – soliciting non-rational components.[17]

Even the process with which music, in the strict sense, forms the soul is described in physical terms: 'rhythm and harmony introduce themselves into the depths of the soul, and touch it with great vigour, bringing to it a fine shape' (*Resp*. 401d5–8, cf. *Protag*. 326b1–2). The musical formation of the soul occurs as a result of contact, through an intense meeting of music with the soul, a meeting that reminds us, in some way, of the energetic movement that shakes the souls of babies in the *Laws*. The role of the soul, malleable *material* under the influence of rhythm and harmony, seems entirely passive. The psychic result of a good upbringing based on music is not indicated here in the acquisition of a virtuous approach, but in the conquest of beauty (401d8–e1): both the action and the effects of music on the soul are conceived in physical terms.

[16] Vegetti 1983, 72–4.

[17] Cf. Edelstein 1949, 477: 'Through the myth the inner core of man's existence receives the command of the intellect in terms that are adequate to its irrational nature.'

In a psychic and moral sense the result is the acquisition of the capacity to recognise, love and make one's own that which is beautiful and decorous and to reject the opposite (401e1–402a4). It concerns, nevertheless, the acquisition of a *habit* and not a rational capacity: under the effect of music, a youth finds himself assuming certain behaviour 'even before he is able to apprehend the reason' (402a2). And so he will not find the contents of reason strange, when he has attained reason, as he will already have a certain familiarity with these contents (402a3–4). In the absence of a full and developed rationality, music directs youths 'to similarity, friendship and concord with beautiful reason' (401d2–3) and prepares conditions so that the passage to the age of reason takes place without strain. In this phase music's task does not require the involvement of reason: indeed, it does not bring science, but habit,[18] as Glaucon recalls in the seventh book (522a3–6). It is a question of accustoming babies to behave well and the capacity of music to insensibly condition character does not seem a problematic aspect, in a context permeated with the conviction that music possesses ethical potential. But what are the perceptive, psychological and cognitive mechanisms that characterise the use of music in this phase? How does this heavy conditioning by music actually come about and what dimensions does it involve? Further on we will endeavour, treating mimesis and the theory of musical *ēthos*, to understand the specific dynamics of these theories. For the moment we will dedicate ourselves to more general questions.

In *Resp*. 401b–d, Socrates expresses the fear that young people educated surrounded by negative 'images' draw into their souls one great evil, without being aware of it. Indeed, he is convinced that bringing them up among positive images could lead to good behaviour, without their awareness. An environment characterised by good works of art is defined as 'a healthy place' and the effect of these works on the soul is described as something that strikes the sight and hearing in a beneficial way: like a breeze that blows from healthy places bringing good health. We can perhaps see an example of a salubrious artistic environment in the Egypt mentioned in various parts of the *Laws*, as a model of conservatism on the subject of music: there – says the Athenian Stranger – since ancient time, the idea abounds

[18] It is clear that, differently from the use of music for very small children, a minimum of rationality in this phase is required, but reason is not directly involved: it participates only 'in a passive and unanalytic sense' (Gill 1985, 9; on the idea that any work of persuasion, even that of soliciting the irrational, determines a rational mental state, cf. Santa Cruz 2007). Apropos of *Resp*. 401d–402a: for Anderson (1966, 68) it is difficult to understand how much can be understood in the physiological sense and how much in the metaphorical sense; Brancacci (2005, 100–1) notes the erotic bias of the language in the passage and the interesting connection established in it between sensibility and reason.

that 'it is necessary for young people in the cities to become familiar with beautiful figures and beautiful melodies' (656d–657b).

Resp. 401d–402a does not help us to understand music's work on the soul, representing a process in physical terms when to our eyes it does not appear physical. But, once again, this provides us with the occasion to reflect on the reasons that lead Plato to present the educative process in the form of a material modification, rather than an intellectual mechanism. The passage explicitly confirms the idea that young people suffer the effects of education, without realising what is happening to their souls. Whether it is a question of good stimuli, or bad, the young person is struck and is not aware of the fact (401c 3: *lanthanōsin*, 401d1: *lanthanēi*; see Barker 2005, 41–2). This is the reason that controlling the activity of poets and musicians is considered to be of such importance.

In 429d–430b, Plato advances another image to illustrate the process of education through music and gymnastics: the dyeing of cloth. To educate is like dyeing the soul with the contents of laws so deeply as to prevent pleasure, pain, fear and desire carrying off the colour, like 'terrible detergents' (429e7–430b2). Once again, even more clearly, there emerges the theme of the passivity of the soul exposed to the influence of educative stimuli; and once again, Plato proposes the idea that the formation of a young soul occurs through mechanisms similar to physical processes.

The programme of musical education put forward in the *Republic* to form youth, the future Guardians, shows the traits of a pedagogy of sensibility: a *paideia* directed at the sensible dimension of man, i.e. to the body and the components of the soul most connected to it. The method is that of habit, meaning a *conditioning* of the sensibility.[19] But what is the exact physiognomy of the psychic interlocutor of music in this phase? In an attempt to show which of the soul's components are most interested in musical *training* one cannot avoid referring to the three elements identified in 436a–441c. But precisely because the theory of tripartition is illustrated after the educative programme, it cannot be assumed that it is possible to clearly individuate the involvement of each psychic element. Furthermore, in the *Republic*, Plato is not clear as to the identity of the principal recipient of the attentions of music.

[19] See Lippman 1964, 74: '. . . the strengthening of desirable feelings and beliefs by habit'; on the *mechanical* character of the educative process through music in this phase, *ibid*. p. 77. Cf. Lain-Entralgo (1958, 318), for which the usefulness of music and gymnastics in the *Republic* consists in 'die Gefühle des Menschen zu ordnen und zu "reinigen"'. Cf. Arist., *Pol*. 1338b4–5: '. . . it is evident that education needs to happen first through habit then through reason', in the same passage, however, the need is asserted to educate first the body with gymnastics and then turn to the soul.

The idea that musical education teaches the emotive adherence to the contents of reason would lead us to suppose that the main element involved is the spirited (*thymoeidēs*). It concerns an element that, among other things, seems to be very sensitive to education: in 441a2–3, Socrates underlines that it is naturally inclined to ally itself to reason, unless it has been ruined by a bad education. The idea is consistent with the statement that the predominance of *thymoeidēs* characterised as much the condition of the infant (441a7–b1), as that of the Guardian (375b7), and musical *paideia* is conceived for young people destined to carry out the role of Guardian (see Gill 1985, 6–12). In 411e4–6, after illustrating the plan of physical education, Socrates maintains that music and gymnastics serve to harmonise the tendencies of the spirited and of the philosophical elements.[20] In 441e8–442a2 the concept returns, but with some important particularities: music and gymnastics create a *symphōnia* between the rational and the spirited, taking care of one element 'through beautiful speeches and learning' (*logois te kalois kai mathēmasin*) and of the other, 'through harmony and rhythm' (*harmoniai kai rhythmōi*). It is not difficult to appreciate that, in reality, here only the effects of *mousikē* are taken into consideration. Furthermore, the psychic function shown here does not seem to coincide with that seen in books II and III.[21] The idea that the verbal aspect of *mousikē* solicits the rational and the musical component the spirited causes puzzlement. Furthermore, the reference to *mathēmata* seems out of place at this stage of education, although the introduction of myth presupposes a certain intellective capacity, as we have said. Less problematic seems to me to be the reference to 'beautiful speeches' (*logoi kaloi*): we can liken them to *kala panta* ('all beautiful things') that in *Leg.* 664b6 represent the verbal content of musical education. But again in 441e8–442a2 we note that in the place of the 'philosophical' element of 411e4–6, appears the rational element (*to logistikon*): these are terms that, in the *Republic*, do not seem to indicate

[20] Socrates is proposing the novelty that gymnastics also concern the cure of the soul, that of the body only in a supplementary way. In *Tim.* 88c and in the *Laws*, see 795d7–9, gymnastics are once again considered a discipline for the cure of the body (Anderson 1966, 94–5; Johansen 2000, 108–9). Balansard (2006, 40) notes a contradiction in the Platonic reflection between the use of gymnastics and of music for the care of the soul–body compound and their respective use for the body and the soul; Balansard links this to a dualistic vision: if the soul is taken as distinct and autonomous from the body, it is impossible to explain the functioning of the soul–body compound.

[21] See Brancacci (2005, 104–5) who proposes translating *to men . . . to de* not as 'the one' (element) . . . the other . . . ' (hence, the rational and the spirited) but 'on one side . . . on the other' and to mean that the passage refers to the work of music and gymnastics on the two elements considered together not separately. But it seems difficult to me to think that *to men . . . to de* does not indicate the two elements in a context in which it is actually the two elements that are being considered (see, in particular, Socrates' previous point, 441e4–6, and successive, 442a4–5).

the same psychic sphere, and in the context of the third book and the treatment of musical *paideia* for Guardians a reference to the philosophical element would seem more appropriate. It is worth noting that in 376a–b, where Socrates demonstrates the necessity that the Guardians have a philosophical nature, the philosophical element is connected to the capacity to recognise and gather the familiar and reject the unknown, a capacity that music helps to develop (401b–402b).

We will now consider the involvement of the elements most distant to the rational. The obtaining of courageous behaviour – an effect that musical education pursues with Dorian *harmonia*, for example – foresees the capacity to measure oneself with the sensations of pain and pleasure (442b11–c3). Education inspires the opinion on the things to fear, but to be courageous means also maintaining this opinion amidst pain, pleasure, desires and fears (429c7–d2; cf. 502e2–503b1, 503e1–2, *Leg*. 633c–d). The dye stamped by musical education also has within it the force to resist attacks of pleasure, pain, fear and desire (430a1–b2). Again, the proof that the music lesson has been well received is the capacity to resist the spell of pleasures and fears: the capacity to 'be a good guardian' of music learnt, at the same time protecting one's own gifts of eurhythmy and harmony.[22] An excess of desire, pleasure and pain characterises the infant's condition, whereas the possession of simple and measured desires, in accordance with reason and opinion, is the intention of good education.[23] A restraint placed on lamenting – at least that placed by avoiding some *harmoniai* – seems to relate directly to that irrational element well loved by poets in book X (606a–b): the worst part of the soul. It is possible that the words of the myth teach a child not to give in to lamenting by intervening on the spirited element, but the intervention of music appears to be different. Not accepting mournful *harmoniai* in the educative plan means not soliciting the worst element of the soul: in this case, musical education seems to concern itself directly with the appetitive element (*epithymētikon*). Finally,

[22] 413b–414a. Assimilated music seems to require protection, as in the passage in question, but at the same time to reassure it. In 424d1–2, Socrates proposes building in music the 'guardroom' for the Guardians, while in *Leg*. 654d5–e1 it is again music that requires a protection, guaranteed here by the possession of the concept of beauty. Cf. *Resp*. 484b9–c1, where the Guardians are the individuals capable of 'safeguarding the laws and occupations of cities': among these it is legitimate to see the musical system as well.

[23] 431b9–c7. This condition would seem to be determined not just by education, but by a favourable disposition of the individual: the result is achieved by only a few gifted and well-educated people. This is one of the many passages in which Plato opposes the irrationality of the many with the rationality of the few. It is interesting to note that the effect of education is not that of suppressing desires, nor restraining them, but of directing them in a qualitative sense, making them 'simple and measured'.

from 548b4–c2 it seems clear that neglecting music brings an inability to manage pleasures.

Such passages lead one at least to suppose a certain involvement of the *epithymētikon*. First of all for its particular relationship with the spirited part: to act on *thymoeidēs* means at the same time checking the appetitive part, but also because a treatment particularly directed at the sensations and emotions seems to be contemplated. I hold that music in *Resp*. II–III concerns the sensible dimension as a whole: in the first place, the perceptions, the first to be petitioned in the musical experience; then, the non-rational components of the soul, necessarily touching on a rationality which is not (or not yet) sufficiently developed to be the protagonist in a musical education programme. The project of using music to train rationality exists and is conceived for future dialecticians (below, pp. 114–51), who – it is worth noting – have passed from infancy through the musical formation of sensibility.[24] Basic musical education is a *paideia* for infants, who do not yet have a well-developed reason; but as we shall see in the *Laws*, it is also an instrument for the many adults who will never have a rationality so they have no need for educational means to behave correctly.

In the *Laws* the characteristics of a basic musical education emerge distinctly, in particular it becomes clear that music addresses man's sensible dimension. The second book, dedicated in great part to the development of a musical *paideia*, opens with the statement that 'the children's first sensations are pleasure and pain, and it is in these that virtue and vice first reach the soul' (653a5–7). Education consists in the 'correct formation regarding pleasure and pain', in the disposition that leads an individual 'from the beginning until the end, to immediately hate that which should be hated and love that which should be loved' (653b6–c4). If pleasure, love, pain and aversion are born in the soul of an individual who is not yet able to realise this rationally, and this individual, having acquired reason, finds himself in agreement with it, then education, through appropriate habits, has been a success (653b2–6). The analogies between this passage and *Resp*. 401d–402a are evident.

There is no doubt that in these passages in the *Laws* education also and above all bears on the most elementary impulses of the soul: indeed it is presented as a conditioning of the fundamental sensations of pleasure and pain. The involvement of the appetitive part of the soul is clearer than in the *Republic*, although one should remember that in the *Laws* there is not

[24] Gill 1985, 9; Lippman 1964, 77.

the precise distinction that exists in the *Republic* between *thymoeidēs* and *epithymētikon* and musical education is put forward as a conditioning of the non-rational part of the soul in its entirety.[25] Furthermore, we note that in *Leg*. 782d–783b musical and gymnastic education have an effect on the most irrational impulses: the desire for food, drink and sex. There are no doubts on the method used either: habit.[26] It is a question of accustoming 'the soul of the child not to enjoy and not to suffer against the law' (659d4–6), and the contents of the laws are the very goals towards which education endeavours to direct and 'attract' young people (659d1–4). The idea of an attracting force – expressed here by the noun *holkē* – anticipates in some way the assimilation of songs to enchantment (*ōidai–epōidai*, 659e1–3) and opens the scenario to a central theme in the reflection in the *Laws*: the 'magical' power of *mousikē*.[27]

The definition of the effect of music on the soul as enchantment is a new challenge to whoever wishes to understand how music influences character. The insistence with which the theme is advanced in the *Laws* (664b3–c2, 665c2–7, 666c3–6, 671a1, 812c6) excludes that it is a superficial pairing suggested by the play on words between *ōidē* and *epōidē*;[28] on the contrary, in the Platonic use of the concept of *epōidē* we can see a case of the 'Platonic transposition' that Diès speaks of (1972, 400–49). After all, the theme of the magical power of song fits well into the context of basic education, in which music acts, by-passing rationality.[29] In 659e4–660a4 the enchanting effect of music is likened to the conditioning of taste, produced through the administering of useful foods in an agreeable form and damaging foods in a disagreeable form (Moline 1978, 18–19). Musical *epōidē* would be a favourable device, indeed an irresistible one, through which good content

[25] See Boyancé 1936, 159, 168, 171; Gill 1985, 11–12; Laurent 2000, 54. On the structure of the soul in the *Laws*, see Maria Michela Sassi's recent article (2008) that throws light on the elements of continuity and difference with respect to the theory of psychology in the *Republic*, dwelling in particular on the reasons and the implications of the absence of the *thymoeidēs*, as a linking element between the rational and irrational. The analysis interprets the normative intervention as a rational intervention on the more individualising aspects of the person, such as passions and perceptions, putting forward a vision of the relationship between soul and State that is also particularly interesting seen in relation to the use of music in the *Laws*.

[26] Dodds 1945, 18; Morrow 1993, 300–1.

[27] It is natural to ask oneself to which element of music such a power should be attributed and to what extent. The verbal component of *mousikē*, myth, is assimilated elsewhere to the *epōidē* (*Phaed*. 114d1–7, *Leg*. 887d). In the *Laws* (in particular, 670e–671a, 812b–c) it seems that rhythm and harmony exercise a specific incantatory power; on the question, cf. below, pp. 29–67, re the theory of musical *ēthos*. On the *epōidē* in the philosophy of Plato, cf. Boyancé 1936, 155–65; Lain-Entralgo 1958; Morrow 1993, 309–11; Gellrich, 1994. On myth as *epōidē* and its ability to petition the appetitive and spirited elements, see Moline 1978, 19–21 and n. 38; Brisson 1982, 93–105, 144.

[28] Morrow 1993, 309–10.

[29] Dorter 1978, 210.

could be passed. Once again the reference to a physical dimension, that of alimentation, seems to indicate that the process is carried out along non-rational lines, making use of the automatic mechanisms of habit. We note, however, that this is a different form of enchantment to that which calms the souls of infants in 790c–791b, and the difference concerns precisely that involvement with reason: absent in the case of very small babies, minimal but significant in the other case. Unlike the *kataulein* at *Leg*. 790e2, the *epōidē* shows traits of a persuasive action: a form of psychotherapy and psychagogy (Gellrich 1994, 283). In the ideal State of the *Laws*, the most profound ethical contents are trusted to the persuasive force of music and musical *paideia* assumes the form of a collective incantation.[30]

Musical enchantment in the *Laws* is the last in a series of enchantments that appear in Plato's work. The *epōidē*, a term in which the qualities of music and words mix and are exalted, appears in passages that raise the question of the powers of *mousikē*, but also of the bewitching potential of the language of philosophy. Both orders of questions are connected to the observation to which I have often referred in this chapter: the idea that the soul, a complex structure that cannot be reduced simply to the rational component, must also be reached and petitioned by non-rational educative stimuli.

Concerning the relationship between the enchanting force of *logos* and that of music, the image of Socrates as enchanter provokes a particular interest. It is already present in the *Charmides*, where Socrates proposes an enchantment, aiming at wisdom, based on 'fine words' (157a3–5). In *Phaed*. 77d–78a, enchantment is the therapy that the philosopher adopts to involve both the non-rational components of the soul (an infant is within us and fearing death) in the conquest of an important philosophical acquisition: a conviction in the immortality of the soul. This passage suggests, on one hand, a comparison with *Leg*. 790c–791b, on the basis of the link between enchantment and infantile psychology; on the other, a comparison with passages in which the Socratic dialogue is assimilated to enchantment. In *Phaed*. 77d–78a, the necessity of treating the non-rational components of the soul does not cause Socrates to abandon the logical argumentative instruments of the demonstration, something that occurs only at the end of the dialogue, where the enchantment of the demonstration cedes its place to the enchantment of myth (114d2–7). In terms of enchantment, the Socratic discussion and its effects are described in *Men*. 79e7–80b7, in *Theaet*. 149a–151d and in *Symp*. 215a–222b. This last passage is notable

[30] Moutsopoulos 1959, 303.

for the fact that between the enchantment of language and that of music there is an apparent contraposition, which in fact hides a complex game of superimposition: the philosophical *logos* that enchants seems to have assumed, within itself, the enchanting force of music.[31]

The *epōidē* in the *Laws*, specifically musical, presents itself as an instrument which the legislator makes use of to form and condition the *psychē*, not only in infants, but also in adults. After all, here music presents itself above all as a corrective instrument, able to guide souls throughout their whole existence (Laurent 2000, 48). Unlike the *Republic*, where Plato seems convinced that the dyeing stamp of education has an indelible character, in the *Laws* there is the clear idea that education, precisely because it is a conditioning of pleasure and pain, is destined to cease and fail many times in the life of a man (653c7–d9). The imposing presence of music in the life of citizens of the ideal State justifies itself as a form of maintenance and retrieval of an education that would otherwise tend to be lost. There is also a naturalistic justification for the choice of music (a justification that is strictly connected to a religious theme: the theme of music as a divine gift). Music responds to an innate human requirement to move and use the voice, a necessity common to all animals, but only man possesses 'the pleasurable capacity to perceive rhythmicity and harmonicity' (653d7–654a5; cf. 664e3–665a6, 672b7–c6, 673c9–d5) and so to make use of the benefits of music.

Musical education in the *Laws* happens through *choreia* – the union of words, music and dance (664e8–665a3) – an expressive form that fully answers the physical and psychic needs of man in the various phases of his existence.[32] To be educated means to know and practise choreutic dance (654a9–b1), and to arrive, through this exercise, at the love of beautiful things and the rejection of ugly ones (654b–e; cf. *Resp*. 401d–402a). Music in the strict sense – rhythm and harmony – is considered to have a precise value in the educative endeavour: in 673a3–5, music is defined in relation to its ability to reach the soul and to instil virtue. To understand the mechanisms with which sound brings ethical contents and determines the character of a soul, we must turn our attention to the complex theory that attributes representative abilities and moral authority to music.

[31] For a more comprehensive treatment of the theme of *epōidē* in Platonic reflection on music, see Pelosi 2004.

[32] Morrow 1993, 302.

THE THEORY OF *ĒTHOS* AND MUSICAL MIMESIS

Plato adheres to the concept known as musical *ēthos*, characteristic of ancient Greek music, when he ascribes to music the power to model the soul according to ethical contents. However, the remote roots of faith in the musical conditioning of character and customs are not embedded in philosophical speculation, nor in technical reflections on the phenomenon of music, but in myth and the ancient use of music in religious and magical rites. It is worth keeping such origins in mind in this psychological analysis of the theory of musical ethics in Plato, even if the immediate reference derives from Damon's theories. When setting out to examine the influence that music can have on the more or less rational components of the human soul, it strikes me as both useful and stimulating to recall that at the origin of these theories lie stories such as that of Amphion, who moved inanimate objects through music (the stones that united to form the wall of Thebes), and the many tales of musicians who tamed animals; the most famous being Orpheus.[33]

Ancient convictions about the ethical power of music would seem to assume the form of a doctrine by Damon, musician and adviser to Pericles. It seems he considered that music, drawing out virtues like courage, temperance and justice from the soul, has the power of forming individuals and communities. Nonetheless, to reconstruct the profile of Damon's doctrine is not an easy undertaking.[34] In a passage of the second book of *De musica* (80, 25–81, 3 = 37 B7 DK), Aristides Quintilianus ascribes to the followers of Damon the idea that music ('the sounds, including those of a continuous melody') produces, 'through similarity' (*di'homoiotētos*), the double effect, in youths and adults, of 'forming a character'[35] that did not exist and of bringing out a hidden one. Furthermore, Aristides notes that, in the *harmoniai* 'passed down by Damon', among the moveable sounds it is sometimes the female sounds and sometimes the male that predominate, that are used less, or are not used at all. Athenaeus ascribes to Damon's followers the conviction that songs and dances come from a certain movement of the soul and that they transmit the character they possess to the soul (*Deipn.* XIV, 628c = 37 B6 DK).

[33] Boyancé 1936, 129; Lippman 1963, 188–9; 1964, 45; Rossi 2000, 65.

[34] Lasserre 1954, 53–95; Anderson 1966, 38–42; Lord 1978; Wallace 1991 and 2004; Brancacci 2001.

[35] The expression used by Aristides – *plattousi te ouk on ēthos* – seems to echo the passages in the *Republic* in which the education of the Guardians is conceived as an action of 'modelling' the character.

We can confront some themes that emerge from these testimonies with other reflections on the educative power of music. In particular, the idea that music imbues the soul with its qualities (hence, that harmony and rhythm can reproduce moral characteristics) and the idea that this occurs through a process of 'assimilation' can be compared with the theory of musical mimesis. Moreover, we can equate the reflections on the relationship between music and the soul's movement with the correspondence, instituted in a Pythagorean sphere, between the ordered movements of the soul and the mathematical movements of music.[36]

Despite the *ēthos* theory having its roots in archaic traditions and beliefs and making up a peculiar trait in the ancient Greek musical experience, it undergoes a radical negation at the hands of the so-called 'formalists'.[37] The term is used to refer to the modern tendency, introduced by Eduard Hanslick, to see only musical values in music, contrary to the widespread opinion that the aesthetic principle of music resides in the expression of feelings. In his essay, *Vom Musikalisch-Schönen*, Hanslick also looks at the particular condition of ancient Greek music, bidding a satisfied farewell to the ethical conception. It seems to me worth noting that, for Hanslick, that which music represents of the feelings is not the content but the dynamic, 'die Bewegung eines psychischen Vorganges' (1854, 16). The notion of movement plays an important part in the ancient theories of musical *ēthos*, including Plato's, as I will show. But certainly for Plato, as for other upholders of the theory of *ēthos*, the content that reaches the *psychē* from music is not only the kinetic of an emotional state. As has been shown (Madell 1996, 73), Hanslick's theory rests on 'a "judgmentalist" view of the nature of emotion': emotion requires a judgment, music cannot produce

[36] Harap 1938, 154–5; Anderson 1955, 99 n. 36. Consider, with due caution, Iamblichus' testimony (*V.P.* xv, 64–6, xxv, 110–15; cf. also Aristox. fr. 26) which ascribes the elaboration and the use of a sort of 'psychotherapy' to the Pythagoreans (cf. Boyancé 1936, chs. 5–6; West, 1992, 31, 246). Rossi (1988, 239–40; 2000, 65–7) distinguishes two currents within the theory of musical *ēthos*: Pythagorean, characterised by a rationalist procedure, and Damonian, employing an empirical method (the classification of the effects of music not based on an abstract explanation, but on experience). Rossi associates the Platonic reflection on musical *ēthos* with the second approach. Cf. West 1992, 247, according to which numerical values play a role in Damon's ethical theory, an aspect that would lead one to suppose a Pythagorean influence. A difference between the Damonian and Pythagorean theories may consist in the fact that Damon perhaps lays an emphasis on the qualitative aspects (for example, cf. below, pp. 47–8, the distinction between male and female tones) whereas the Pythagoreans describe the phenomenon in quantitative terms (Lasserre 1954, 59–60; Moutsopoulos 1959, 73–5; Barker 1984, 169). In any case, as we shall see, in the Platonic reflection influences from both currents are present. A description of music in terms of the movement of the soul turns up again in Theoph. 716, 130–3, in which, for the link with Damonian theory see Barker 1989a, 118 n. 44.

[37] Harap 1938, 165–6; Lasserre, 1954, 84–7; Rossi 2000, 68–9.

judgment, and hence it cannot produce emotions. As we shall see, for Plato, music can express emotional and ethical states capable of substantially altering the human *psychē* and its emotive and cognitive faculties.

Further modern theories about the expressive and representative abilities of music might offer important comparisons for our research.[38] From different perspectives – neurological, psychological, anthropological, philosophical and aesthetic – we still ask ourselves if music has representative and expressive powers; if it is a language and of what type; what is its impact on emotivity and the human cognitive apparatus. However, here I will limit myself to a brief consideration of some reflections, characterised by an anthropological and ethnomusicological approach, that provide interesting hints regarding our research. I refer to John Blacking's work on the relations between music, society and politics, on the semiotics of music and the value of this artistic expression in human experience. Blacking accepts the nucleus of Hanslick's criticism regarding the representative and communicative possibilities of music: 'Music cannot *instil* a sense of fellowship . . . or any other state or social value. . . . Music cannot communicate anything novel to its listeners except unfamiliar patterns of sound'.[39] Thus, there is a decisive denial of the principle on which the ancient theory of *ēthos* rests as well as a large part of the Platonic use of music for educative ends: the idea that music bears and inspires ethical content, with an operation that has exceptional social and political impact. However, Blacking's view that music is essentially a human matter, relating to man seen in his emotivity and sociability, seems to me to come very close to the idea, central to the doctrine of *ēthos*, that music can intervene efficiently on the human *psychē* and condition the mechanisms of social aggregation. Furthermore, Blacking's analysis is also of interest to us in that it draws a parallel with various musical cultures that differ from Western music, and in which, in some respects, it is perhaps easier to find points of contact with the musical experience of ancient Greece.[40]

To return to the ancient 'formalists'. They deny music any educative or psychagogic function: only words have such a function, while music is

[38] An analysis of some ancient theories on the communicative power of music, with reference to modern reflections on the subject, can be found in Sorabji 2000, ch. 5, in Halliwell 2002, ch. 8 and in Levin 2009, ch. 1.

[39] Blacking 1973, 107–8; Byron 1995, 36.

[40] African musical culture, to which Blacking dedicated years of research, conceives music as a collection of manifestations and not just instrumental music: this recalls the ancient Greek concept of *mousikē*. Cf. Baily (1985, 239) who found that in certain African languages there is one term to indicate music and dance: in the Igbo language, for example, the term '*egwu*' indicates music, song, dance and drama, considered inseparable elements of a musical performance.

neutral from a moral point of view. For our research into the expressivity of the elements of *mousikē*, it is important to note that the objection of the 'formalists' only makes sense if one considers the theory of *ēthos* to be focused on the component of sound in the phenomenon of *mousikē* and recognise ethical potential therein, as Rossi rightly pointed out (2000, 73). The most complete criticism of the theory of *ēthos* is that of the Epicurean, Philodemus of Gadara (c. 110–c. 40BC), but the discovery of *Hibeh Papyrus* 13, containing a decided attack on the notion of musical *ēthos*, has permitted us to backdate the criticism.[41]

These are the theoretical suppositions that, in one way or another, condition Plato when he takes up a new approach to the old idea that music acts on character. But we should ask ourselves if the theory of musical *ēthos* becomes more complex through a confrontation with Platonic psychology. To analyse how Plato conceives the physical and psychological mechanisms of the action of music means, at the same time, persevering with a study of the use of music for the formation of sensibility and, as we shall see, embarking in a different direction.

In the *Republic* Plato imagines the future Guardians to be exposed to *mousikē* from a young age in order to acquire, through habituation, certain moral habits. The type of music that the philosopher has in mind is the ancient hierarchical union of words, harmony and rhythm, thrown into a deep crisis by the advent of new musical expressions. There emerges from 376e6–9 and 398b6–c2 the idea that the treatment of music is necessarily conceived as a treatment of the verbal aspect and that of sound, and of one before the other; in 398d8–9, 399e11–400a3, 400d3–4 the subordination of harmony and rhythm to words is affirmed. The reflection on music in a strict sense is launched on the principle ideas of the long treatment of myth. It is the ethical contents found therein that inform an analysis of harmony and rhythm, which presents itself as a relatively easy undertaking: it would simply be a case of 'tuning in' with what had gone before (398c4–6). Hence, the rejection of 'wailing and lamentations' *en logois* (398d11–12) implies rejecting the *harmoniai* of an analogous character, the *thrēnōdeis* (398e1); the idea that it would not be opportune for the Guardians to assume that relaxing attitudes leads to the rejection of the *malakai kai sumpotikai harmoniai* (398e9). The certainty with which Socrates and Glaucon trust that they can find a music that expresses precise ethical content and the immediacy with which they do indeed locate it, show how familiar was the

[41] On Philodemus, see West 1992, 251; Sorabji 2000, 87–91; Delattre 2001, 2009; Halliwell 2002, 249–59. On *PHibeh* 13 and the different hypotheses as to its date, cf. Barker 1984, 183; Avezzù 1994; Lapini 1994.

ethical component of music and to what point classification in the field of the theory of *ēthos* had arrived.

Prior to concentrating on the reflection on *harmoniai*, we will briefly turn our attention to the protagonist of this analysis in ethical terms. It is worth noting that Socrates relies on Glaucon, called forward in his capacity of *mousikos* (398e1), to individuate the *harmoniai* that express correct moral habits. The term *mousikos* indicates here an expert on technical questions (Anderson 1994, 152), 'one who knows about music', as opposed to the many passages in the dialogues in which the *mousikos* is an individual who has assumed in his soul the moral qualities expressed by music or a musical psychological attitude. Recognising the link between *harmoniai* and particular types of character seems to be a question for experts, even if we cannot exclude that the recognition of an association between music and emotive states is quite common.[42] It is strange that it is Glaucon who traces the *harmoniai* of the good *ēthos*, having, just a few phrases before, declared himself incapable of conducting an ethical reflection on music (398c7–10): the young man 'suspected' what he should say, but was unable to 'indicate' the arguments of the treatment. On that occasion it was Socrates who conducted the discussion, but he limited himself to affirming once again the need for music to conform to certain moral characters and to indicate these characters. When they came to discuss music itself, Socrates let Glaucon take the floor, and at that point he showed himself to be perfectly able to indicate both the *harmoniai* of correct ethical content and those to be rejected.

So, Socrates is capable of pointing out the characters to whom the *harmoniai* must conform, but not the *harmoniai* themselves, of which he declares himself ignorant (399a5). The idea that Socrates can only indicate the ethical models on which music should fashion itself and not music itself recalls the passage in which, in the context of poetry, Socrates explains that the job of the founders of a city is to be acquainted with the *typoi* in which the poets should compose myths and make sure they respect them, not compose the myths themselves (379a1–4). After all, at 412b2–3, referring to the treatment of music and gymnastics, Socrates says that certain 'types' (*typoi*) of education and upbringing had been identified.

Socrates would like to proceed in a similar fashion regarding rhythms: leaving Glaucon to individuate them, once the ethical content has been defined (399e8–400a3). But here the musical knowledge of the young man is found wanting. Glaucon is able to characterise the 'types' (on these

[42] Barker 1984, 130 n. 21, 131 n. 23.

eidē, below, p. 49) from which the rhythms spring – just as he is able to characterise 'types' of sounds – but he does not know how to show which of these are 'representations' of certain types of life: he is not able to insert his notional techniques regarding rhythm into an ethical context. The problem is directly resolved under the authority of Damon: another interesting development in this analysis of the figure deputed to conduct an ethical reflection on music.

The fact that Glaucon only manages to recognise the ethical content of the *harmoniai* and not the rhythms might demonstrate that the first aspect is by a long shot more understood and identifiable, while the latter is more evasive (and can be linked to Damonian reflection).[43] However, I do not think that Glaucon's inability to point out the appropriate rhythms demonstrates the inadequacy of a technical training in the appreciation of the ethical values of music.[44] Glaucon shows himself capable of contending with the *ēthos* of music and able to individuate the *harmoniai* that should be accepted and those to be rejected: this strikes me as a sign that, at a certain level and in its most noted aspects (such as *harmoniai*), the theory of *ēthos* is part of a technical musical training. The approximation that characterises the rhythmic section of *Resp*. III might therefore depend on the fact that Damon's teaching on these aspects was quite complex and unclear, at least in the eyes of Plato.[45] In any case, the appeal to Damon not only calls a musicologist into question, but also one who, with unmistakable musical competence, conducted the reflection on the psychological effects and social impact of music.

To summarise: three figures contribute to the ethical treatment of music in *Resp*. III, each with very different competences. Socrates, the philosopher expert on the ethical models and the moral function of *mousikē*, for which a dedicated knowledge of music is not needed; Glaucon, the young man gifted with technical–theoretical notions on music; Damon, the greatest authority in the field of ethical music: also a technician, but capable of tracing connections between dispositions of the character and elements of *mousikē*.

[43] See Boyancé 1936, 130–1; Wallace 1991, 45–6.

[44] Jaeger 1954, vol. III, 408 n. 111.

[45] See Lasserre 1954, 67, who also advances the hypothesis – in my opinion less convincing – in which Damon's rhythmic theory handles notions as diverse from those widespread at the time of Plato as never to be reported in their technical details as anything other than a curiosity. The absence of Damon in the discussion on the *harmoniai*, on the other hand, raises the question of whether he had anything to do with that treatment, cf. Lord 1978, 37–8; Wallace 1991, 48–9; Barker 2007, 47 and n. 18, 310 n. 3. In general on Plato's cautious and critical use of the Damonian theory, cf. Anderson 1966, 74–81; 1955.

Without hesitation, Glaucon suggests to Socrates the names of the *harmoniai* to avoid as being expressions of a lamenting character: Mixolydian, Syntonolydian and similar others (398e2); and the 'soft and convivial' *harmoniai*, expressions of drunkenness and softness, such as Ionian and some Lydian, known as 'slack' (398e10). Aristotle makes clear to us (*Pol.* 1342b20–30), criticising Socrates for avoiding these *harmoniai*, that for Plato they are 'inebriating' in the sense of being languid and not exciting. The definition of 'convivial' would lead one to believe that Plato also rejected these *harmoniai* because of the difficulty of controlling music, such as the music of a symposium, which is characterised by improvisation.[46] The *harmoniai* that remain, the Dorian and Phrygian, end up fully answering to the two qualities that music must express: courage and temperance (399a3–c6).

What can be precisely classified in ethical terms are the *harmoniai*: structures of sound endowed with a particular style and attributable to a particular geographic and cultural province.[47] In a passage of *De musica* (18, 5–19, 10), Aristides Quintilianus relays a description of the structures of some *harmoniai*, specifying that they are the actual structures to which 'the divine Plato' refers in the *Republic*. Hence, is it possible to examine the precise physiognomy of those sound sequences that carry an ethical content? Aristides' testimony should be considered with prudence. His 'Platonic' *harmoniai* are structures formed of enharmonic tetrachords, of unequal length, described through intervals.[48] In 15, 11–20, during a treatment of the *systēmata*, Aristides presents a much more systematic list of *harmoniai*, pertaining to the sound structures of the diatonic genus, that Aristides defines 'species' and describes according to the note of departure, not according to the intervals.[49] From a comparison of the two lists, it is evident that the 'Platonic' *harmoniai* are not dissimilar to those of the systematic series in 15, 11–20. The most obvious analogies occur in the Dorian *harmoniai*: in 18 the Dorian *harmonia* presents an identical structure to the Dorian in the systematic version, except that the older version has an extra tone at the bottom; in the Phrygian: the older can be made to tally with

[46] Moutsopoulos 1959, 300; Rossi 1988.

[47] On the nature of the *harmoniai*, cf. Barker 1989a, 14–17. For the hypothesis that they were melodic–modal models quite similar to Arab *maqamât* and Indian *rāgas*, cf. Chailley 1956, 155; Powers 1958; West 1992, 217 n. 66.

[48] Following is the list of values of the intervals in fractions of a tone. Lydian: ¼ 2 1 ¼ ¼ 2 ¼ (full octave); Dorian: 1 ¼ ¼ 2 1 ¼ ¼ 2 (octave plus a tone); Phrygian: 1 ¼ ¼ 2 1 ¼ ¼ 1 (full octave); Ionian: ¼ ¼ 2 ½ 1 (octave minus a tone); Mixolydian: ¼ ¼ 1 1 ¼ ¼ 3 (full octave); Syntonolydian: ¼ ¼ 2 ½ (octave minus two tones).

[49] Mixolydian: ¼ ¼ 2 ¼ ¼ 2 1; Lydian: ¼ 2 ¼ ¼ 2 1 ¼; Phrygian: 2 ¼ ¼ 2 1 ¼ ¼; Dorian; ¼ ¼ 2 1 ¼ ¼ 2; Hypolydian: ¼ 2 1 ¼ ¼ 2 ¼; Hypophrygian: 2 1 ¼ ¼ 2 ¼ ¼; Hypodorian: 1 ¼ ¼ 2 ¼ ¼ 2.

the systematic, lowering the high tone an octave below and joining it up; and between the Syntonolydian harmony in 18 and the higher part of the Lydian. On the other hand, the absolute sameness of the Lydian harmony in 18 and the Hypolydian harmony of the systematic series leads one to suspect the authenticity of the Lydian.[50]

Such analogies might suggest that the *harmoniai* in 18 are a first and less systematic version, on the basis of musical practice, and already widespread in Plato's time.[51] We can thus have a certain confidence in Aristides' testimony: the melodic structures about which Plato was thinking in *Resp*. III might have been something analogous to the *harmoniai* reported by Aristides.[52] In general, in the analysis of ethical theory found in *Resp*. III, by *harmoniai* I mean a model of pitch and intervals defined on the basis of determined relationships: a model which, used in the tuning of an instrument, prepares it for the playing of certain melodies.[53]

The immediate connection between ethical states and *harmoniai* straightway encounters two aspects that can be easily singled out, but over which it is worth pausing. (1) Ethical power is recognised in music in the strict sense;[54] (2) a specific ethical content is recognised in the single elements of music: first *harmonia*, then rhythm. Aspect (2) would appear more interesting in as much as it appears in a treatment in which the need for a strict bond between the different artistic expressions of *mousikē* and the subordination of music to words is forcefully affirmed. As I hope to show, the need for music to align itself with words comes

[50] Winnington-Ingram 1936, 21–30; Barker 1984, 165–8.

[51] We should exclude that Platonic *harmoniai* have a very rigid structure: it is not about scales, *systēmata* or 'species of octave' successively defined (Henderson 1942, 96; Chailley 1956, 140–4, 154). For an analysis of the oldest meaning of *harmonia*, cf. Rocconi 1998.

[52] Cf. Barker 1984, 165, 167; 2005, 68–9, who further hypothesises that Aristides' source when accounting for these *harmoniai* is Aristoxenus, who dedicated himself to analyses of the most ancient musical forms.

[53] Barker 1984, 130 n. 18, 164. For an analysis of the harmonies of Aristides and those of the *Republic*, see Mountford 1923; Winnington-Ingram 1936, 21–30; Henderson 1942; Chailley 1956; Barker 1984, 165–8; 1989a, 14–17; Anderson 1966, 70–2; 1994, 154–7; West 1992, 174–7, 227–8; Pagliara 2000, 164–7.

[54] For a clear testimony of the acknowledgment of a melodic *ēthos* in ancient musical theory, cf. ps.-Arist. *Probl*. XIX, 27. The author asks why among the sensibles only those regarding hearing have *ēthos*; the answer is to be found in musical movement (more than in the movement of a single sound, it is a question of the movement of melody, Barker 1989a, 197 n. 53) that represents the movements of the actions (cf. *Probl*. XIX, 29). On the role of movement in the Platonic theory of *ēthos* and musical mimesis, see below, pp. 50–67. A reference to the ethical power of instrumental mimesis is also present in *Pol*. 1340a12–14: 'Furthermore, listening to imitations, everyone feels corresponding emotions, even when there are no words with the rhythms and melodies', accepting the emendation of Susemihl (*kai chōris [tōn logōn dia] tōn rhythmōn kai tōn melōn autōn*), cf. Anderson 1966, 125–6, 186–8; Ford 2004, 320–5.

from the awareness of the notable expressive and ethical potential of music.

Another obvious, but problematic, fact is that the ethical dispositions connected to *harmoniai* – the tendency to complain, laziness, softness, courage, temperance – represent psychic states that are quite different from one another. It is possible to assemble some of these into similar categories, and perhaps not by chance, negative and positive states appear in some way comparable to each other. The first regarding the free expression of disagreeable sensations (lamenting) and the abandonment to agreeable sensations (softness), the latter connected to the ability to control sensations and emotions (courage and temperance).

In musical terms the factor that characterises 'lamenting' harmonies is pitch.[55] However, regarding the category of 'soft and convivial', it is not easy to make out a distinct technical characteristic.[56] An opposition that is both musical and ethical at the same time seems to emerge in the treatment of rejected harmonies: the contrast between tension and slackness. An understanding of the nature of such an opposition would help us greatly in the analysis of the ethical theory set out here.

In *Pol.* 1342b17–34, and in one of the criticisms that Aristotle raises at Socrates' musical choices in the *Republic*, there is an observation that throws light on *Resp.* 398d–e and on tense and slack music.[57] According to Aristotle, the censure of some musical experts towards Socrates was well founded, because he rejected the slack *harmoniai* for educative reasons: it would

[55] As far as the Mixolydian *harmonia* is concerned, it should signify that the notes of a melody written in this harmony are found at a higher pitch with respect to the notes of the same name in another *harmonia*. However, in the case of the Syntonolydian *harmonia* (literally 'Tense Lydian'), we should also consider the fact that its higher interval is further extended by a quarter of a tone (Barker 1984, 166). According to West (1992, 179) the difference between a 'tense' and a 'slack' *harmonia* may consist in the fact that, although being in the same octave (C–C for example), the melody of the one moves above all in the high part of the octave, the melody of the other in the low part. It is probable that ps.-Plut. *De mus.* 1136b–c, which refers to Plato's rejection of the Lydian *harmonia* because of its pitch and its having a character appropriate for lamentations, regards the Platonic rejection of the Syntonolydian *harmonia*.

[56] Barker (2005, 26–7) notes that the adjective *chalaros* (used in a literal sense, unlike *malakos*, which is also used in a metaphorical sense to indicate an ethical state, cf. 398e9) provides a precise indication of the structure of the Lydian *harmoniai* in 398e10: slackness concerns the strings, and consequently, a lowering of intonation.

[57] Doubts have been raised about the authenticity of this last part of the *Politics*, also considering the strange discourse on the elders and the rehabilitation of some *harmoniai* (Susemihl 1884, 616–18; Newman 1973, 571–2; Lord 1978, 40–2 maintains that it is not authentic but of Damonian inspiration). The reflection on the difficulties of intonation of high registers reappears in a work of Aristotle's milieu, but not by Aristotle: *Probl.* XIX, 37.

have been opportune to accept those *harmoniai*, thinking of those who have difficulty singing *tas syntonous harmonias*, due to age. Here Aristotle is considering education in relation to the principle of 'appropriateness', but also of 'possibility': it is physical limitations that might suggest introducing slack *harmoniai* into education.[58] Here relaxation and tension concern only the technical fact of the melody's pitch (Barker 1984, 181, 39) and we might ask ourselves about the role pitch plays in the definition of the ethical content of a *harmonia*. It is possible that high pitch and low pitch had moral values, and this had already appeared in Damon's ethical theory: in particular, for example, it seems that high pitch was considered damaging because of the strong shaking that it causes the soul (Lasserre 1954, 60). But on the whole it is difficult to believe that the ample and precise spectrum of qualities connected to *harmoniai* be produced by a modification in pitch (Chailley 1956, 154). As we have seen, in the final part of the *Politics*, slackness and tension hold a technical–musical meaning; but it is also interesting to evaluate the passages in which the ethical and psychological meanings superimpose themselves onto this meaning.

In the first place, let us consider Proclus' commentary on *Resp*. 398–9 (*In Remp*. 1, 61, 19–21). In no way does it solve the conceptual ethical–musical problem, on the contrary it too exploits the ambiguity in the notions of tension and slackness. With reference to convivial *harmoniai*, Proclus says that 'they slacken the desire to enjoy' (*hai men to philēdonon chalōsin*); with reference to the mournful harmonies, that they 'stretch the desire to suffer' (*hai de to philolypon synteinousin*. Cf. *Pol*. 1341a40: *ta pros hēdonēn synteinonta*, apropos the instruments to reject, below p. 45 n. 70). Thus, the object of the actions of tension and slackness would be the element responsible for the sensations of pleasure and pain; and, in both cases, the outcome would be a solicitation of that element.

The notion of slackness appears in the interesting insight into New Music in the fragment of *Chiron* by Pherecrates. Music, who, speaking in the first person, accuses the interpreters of new musical tempi, criticises Melanippides for having 'slackened' the twelve tones and 'made them languid'.[59] The reference to the twelve tones turns up again at the end of the fragment (vv. 22–5) in relation to the 'ant's paths', an eloquent metaphor for

[58] It is interesting to note that in 1342b29–33 Aristotle holds that the Lydian *harmonia*, rejected by Plato for being 'slack', is particularly adapted to youth, because it is endowed with beauty and educative properties.

[59] Fr. 145, vv. 3–5. The idea of slackness, in this case, lends itself to the oscillation between the fields of music and eroticism (Comotti 1979, 82). For a comparison between the ambiguous use of the *chalaros* on the part of Plato and Pherecrates, see Anderson 1994, 153.

chromatic music (cf. Ar. *Thesm*. 100, concerning the musical innovations of Agathon). Here the languid effect seems to be linked to the introduction of microtones, to chromaticism. It might be of interest, in this respect, to note that in ps.-Plut. *De mus*. 1136b–c, the origin of the Lydian *harmonia* is linked to Melanippides. This testimony – that should be understood in the sense that Melanippides was the first to use that harmony in the dithyramb (West 1992, 358 n. 9) – allows us to hypothesise a connection between the 'slack' character of chromatic music and that of the languid *harmonia* rejected by Plato.[60] Now, chromaticism is put forward in relation to a softening of the character of the melody in Aristoxenus' *El. harm*. 30, 3–5, but in a passage in which the musical operation that determines how to make the melody languid is not the slackening of a string, but increasing the tension. Aristoxenus criticises the habit of contemporary musicians to reduce the interval between *mesē* and *lichanos* (the central note and the one below in the characteristic octave, respectively) – which should be of two tones – using 'higher' *lichanoi*, with the aim of 'softening' the character of the music.

In the *Laws* there are two interesting uses of the notion of tension. In 815a7–b3, describing the correct execution of Pyrrhic dance, Plato speaks of *to eutonon*. To be 'well tense' in the physical sense, like the strings of an instrument, is the movement of the body following a straight course (*euthypheres*). In a moral sense this correct tension translates into the representation of good souls and bodies (below, pp. 58–9). The passage offers us the opportunity to evaluate the application of the notions of tension and relaxation to the body and the *psychē*. In this connection, Rocconi's observations (2003, 17), which are also based on the passages in which Plato alludes to the tension and the relaxation of nerves (*Phaed*. 98c–d; *Tim*. 74b), are interesting in that she draws attention to the role that observation of the mechanisms and structures of the human body at the origin of the ethical meaning of terms relative to the sphere of tension and relaxation must have played.

In *Leg*. 800d 2–4, tension does not concern music, but the effect that it produces on the soul of the listener. Deprecating the immoral practices of choirs who solicit crying during sacrifices through the use of music, the

[60] Restani 1983, 144 and in general, for a lexical and musical analysis of the *Chiron* by Pherecrates. In *Pol*. 1342a23–5, where Aristotle talks in negative terms about *harmoniai* and songs as 'tense' (*syntona*) and 'badly coloured' (*parakechrōsmena*) – and here *syntonos* seems to bear an ethical meaning – one must think of a metaphorical use of musical 'colouring' – as in *Resp*. 601b and in *Leg*. 655a, 669c – and not of chromatic music. However the metaphor can refer as much to the general character of melody as to nuances in tuning (Barker 1984, 143 n. 61).

Athenian says: 'stretching the souls of the listeners with words, rhythms and most dolorous *harmoniai*'. If it is possible to compare these funereal *harmoniai* to the lamenting ones of *Resp*. III – and the comparison seems to me to be legitimate – we have a physical description of the ethical effect indicated in *Resp*. 398e 1–3: the tendency to express one's own sufferings comes from a 'tension' created in the soul. Nonetheless, this 'making tense' is an operation that comes from musical practice (Barker 1984, 159 n. 95) and a similar explanation of the influence that music has on the soul takes advantage of the oscillation of the concept of *syntonos* from a musical to an ethical level. What appears to be clear is the reference to a musical stimulation of an emotive psychic component: an inducement that could perhaps be likened to that produced by mimetic poetry in *Resp*. 606a3–b8 on the element *thrēnōidēs*. But *Leg*. 800d2–4 also offers the cue to go into a further question regarding the impact of music on the *psychē*. The passage describes an effect of music that is *extemporary*. A similar impact seems to be contemplated in the theory of musical *ēthos*, as we see, for example, in the curious anecdote that tells of Pythagoras calming a drunk who is in love, asking an *aulos* player to stop performing an exciting Phrygian harmony and play a solemn melody for libations instead (Iambl. *V.P.* XXV, 112; in Gal., *De plac. Hipp. et Plat*. V, 453, the protagonist is Damon and the latter melody is Dorian). But the idea – characteristic of the theory of *ēthos* and Platonic reflection – that music moulds the character seems to presuppose a different effect, resulting from a *repeated exposure* to music. The question this raises, obviously, is the rapport between these two types of effects of music on the *psychē*.

To understand what 'to tighten the soul' means in psychological terms, we can analyse some passages from the *Republic*, in which Plato considers the role of music and gymnastics in relation to the components of the soul. For the moment we will leave aside the question of regions of the *psychē* that are most affected by music and concentrate on the metaphorical use of the categories of tension and relaxation.

Demonstrating that music and gymnastics both serve to cure the soul (410b–412b), Socrates affirms that they work on the philosophical and the spirited, 'so that they are tuned between themselves, making them tense and slack to the proper point' (411e4–412a2). Musical metaphors previously appear in 410d8 (*epitathen*) and 410e2 (*anethentos*), and not long after there is a description of what happens if there is too much exposure of a psychic component (in this case the spirited) to the influence of one of the two disciplines (in this case music). The 'sweet, soft and mournful' *harmoniai* (411a7–8: *tas glykeias te kai malakas kai thrēnōideis harmonias*), that flow

through the ears into the soul, determine the positive effect of sweetening the spirited; but an overdose of music could lead this psychic element to destruction. We may note that, unlike 398d–e, the harmful effect on the soul does not derive from *listening* to *harmoniai* that are 'slack and lamenting', but from an *excessive listening*: the problem is not in the quality, but in the quantity. I believe that the incongruity comes from Plato's different approach in two series of passages: those in which he quite faithfully holds to the theory of musical *ēthos* and those in which he elaborates an original reflection on the music–*psychē* interaction. It is in this way that I consider the different treatment of courage at 399a–b and at 410–12 is explained.

In *Resp*. 411e4–412a2, the spirited and the philosophical are like two strings, on which music acts, slackening the first and making the second tense; gymnastics, the opposite way round.[61] Beyond the difficulties in comprehending the relationship between the use of music and harmony among the components of the soul (below, pp. 185–6), the action of making tense seems to indicate, beyond the metaphor, the solicitation of a part of the soul. The musical references (including the reference to harmony among the components made explicit only in 443c–444a) show that this action, directed as much to the spirited as to the philosophical, is essential to create an equilibrium in the soul. But they also show that we must be prudent in the correct use of music and gymnastics in order not to 'make tense' any of the elements beyond what is fitting, causing a break in harmony. In this passage we can see a more articulated use of the musical categories of tension and slackness, in relation to a broadening of the psychological discourse. Unlike *Leg*. 800d2–4, where tension, the effect of harmful *harmoniai*, is clearly negative in moral terms, in *Resp*. 411e–412a tension is not defined in an ethical manner: if anything it is tension and slackness that produce an ethical result.

To sum up: we have analysed certain passages in which the concepts of 'tense' and 'slack' are used in reference to the technical characteristics of music, and to the ethical effects that music produces.[62] In this way, the

[61] Barker 1984, 137 n. 45, 138 n. 50.

[62] For a comparison between *Resp*. 398–9 and 410–12, regarding the concepts of tension and slackness, see Barker 2005, 49–52. Another singular use of the concepts of tension and slackness is to be found in *Soph*. 242d7–243a2. Plato presents, in 'musical' terms, the positions of Heraclitus and Empedocles, attributing to the one the sound of 'Muses of a tone that is more tense', and to the other the sound of 'slacker' Muses. The concept of a plurality organised in a harmonic whole is affirmed in a sustained tone; while 'relaxed' is the concept that contemplates changes and alternations between phases of agreement and phases of conflict. Musical tension and slackness are applied here to the argument between one and many in the discourse on being.

level of precision with which the interaction between the physical reality of sound and the psychological and moral reality of the soul is felt becomes clear; but also how difficult it is to understand the relationship of cause and effect between the technical aspects of music and the internal dynamics of the human *psychē*.

Moving on to consider the *harmoniai* found in *Resp*. III, the Dorian and Phrygian, we find ourselves all of a sudden with the need to compare, and find a cause–effect connection between sound structures whose character is as marked as it is difficult to reconstruct, and complex dispositions, such as courage and temperance. The aspect that makes these two *harmoniai* so valuable is their capacity to appropriately 'represent' 'the utterances and accents' of two typologies of an individual: of the courageous at war or involved in other violent action, one who even confronts misfortune with a brave heart; and one who, in conditions of peace, uses prayer and persuasion and behaves in a wise and measured manner. The two *harmoniai* – defined 'violent and voluntary' – 'make the best representation of the accents of unfortunate, fortunate, moderate or courageous men' (399c2–4). Twice (399a7 and c4) Socrates talks of a well-made representation through sound. In an analysis of the good *harmoniai* we encounter a further important theme of Platonic reflection on music: the theme of musical mimesis.

The subject seems to be originally connected to the theory of musical *ēthos*: music can interact with the soul because it is able to represent psychic states.[63] At *Resp*. 399a5–c4, mimesis only seems to concern music, but it is likely that the process that causes the soul to assume the character expressed in music should also be understood as mimesis. The soul assumes certain qualities, because it reproduces the ethical contents of music that, in turn, presents itself as a representation of ethical dispositions.[64] After

[63] Harap 1938, 156; Lippman 1963, 196; 1964, 55.

[64] According to Lasserre (1954, 59–60), in the Platonic treatment of Phrygian and Dorian *harmoniai* in *Resp*. 399a–c Damonian theory emerges, so that, representing the actual sounds of a human activity and the sentiments linked to it, the *harmonia* produces a corresponding movement in the soul, through similarity. It appears to me that in *Resp*. 399a–c only the idea that music is a representation of attitudes defined in ethical terms emerges with clarity and not the process through which the soul is influenced by such a representation. It should be noted that in Athenaeus' testimony (628c) it is the movement of the soul that produces – and is not produced by – music with a particular ethical content. Drawing a comparison between this testimony and that of Aristides, we can perhaps glean an idea of how Damon perceived the process through which music acts on the soul. Else (1958, 84–6) shows uncertainty concerning the attribution to Damon of a complete theory of mimesis and holds that the complex concept of musical mimesis in *Resp*. II–III is Platonic. According to Anderson (1966, 40), the Platonic notion of mimesis incorporates the Damonian of *homoiotēs*, but they are two different notions. Cf. Barker 2005, 71–2, for which there are no valid motives to attribute either a theory of musical mimesis or an analysis of the soul to Damon. In *Resp*. 500c2–7 there is an interesting description of a process of assimilation through mimesis: it concerns the process

all, in the excerpt of the *Republic* on *harmoniai* and rhythm, Plato does not mention the process that brings the soul to assimilate itself to music: it seems that, in some manner, such an aspect is taken for granted. With the introduction of the concept of mimesis, we can also observe a notable broadening of the description of the ethical content. In the analysis of the *harmoniai* with the negative *ēthos*, Plato refers in a generic manner to their lamenting and slack character, while the ethical content of the Dorian and Phrygian presents much better defined traits. As a consequence it is even more difficult to understand how sound structures can make themselves into an expression of similar content. Analysing the first part of the treatment of the *harmoniai*, it was possible to comprehend the ethical character of a *harmonia* as an abstract content, linked to the sensations that the succession of sounds transmits. But now, confronted with the clear idea that music is the representation of precise typologies of individuals – personalities characterised by well-defined ethical qualities (courageous, temperate . . .) – and not only generic motions of the soul (such as a tendency to laziness or sadness) we must renounce that possibility. Drawing close to the ancient theory of musical *ēthos*, it is almost natural to think that the ethical nuances attributed to the *harmoniai* are something analogous to the emotive and psychological characteristics still today associated with music in relation to factors such as tonality, for example.[65] But from a more profound analysis it is clear that the comparison is inappropriate. There is perhaps something artificial in the operation with which such precise ethical contents are attributed to the *harmoniai*, as occurs in *Resp*. 399a–c,[66] but Plato's consideration of musical *ēthos* seems to justify taking this passage very seriously.

Of the courageous and temperate, the Dorian and Phrygian *harmoniai* represent *phthongoi* and *prosōidiai* (399a7–8, c3), utterances and accents. It is worth noting that the Greek terms re-evoke a musical sphere. *Phthongos* is the sound, the note and *prosōidia* is the modulation of the voice, 'the melody of the language' – as defined by Aristoxenus (*El. harm*. 23, 13–15), determined by the raising and lowering of the voice (Barker 1984, 131

that the soul of the philosopher undergoes when he contemplates reality characterised by order and proportion, and ends up assuming analogous characteristics. Because of the level of awareness required by this process, it would be inappropriate to make a comparison with the process of assimilation triggered by the musical mimesis in *Resp*. II–III and the *Laws*; the experience of those who gather the representative content of music in *Tim*. 80b5–8, on the other hand, implying a contemplation of universal harmony suggests an analogous process (see below, pp. 96–7).

[65] For a reflection, in the field of modern Western music, on the impossibility of tracing a musical representation of human behaviour back to the expressivity linked to the dynamics of tension and resolution, see Madell 1996, 66–7.

[66] Anderson 1966, 107; Wallace 2005, 154–5.

n. 24). Hence, musical mimesis is a representation, by means of *phthongoi* and *prosōidiai*, of the *phthongoi* and the *prosōidiai* of courage and temperance. It may be superfluous to state that, once again, the use of terms that also have a precise musical connotation does not help in the understanding of the mechanisms that are at the basis of the theory of *ēthos*. On the other hand, it is necessary to analyse the use of these terms: it seems significant that the ethical content of the Dorian and Phrygian *harmoniai* is not indicated by Plato in abstract qualities – courage and temperance – but in concrete examples of certain moral dispositions. The particular definitions of the *harmoniai*, one as 'violent' and the other as 'voluntary' (399c1–2) do not seem comprehensible without the preceding descriptions of the individuals with those particular moral attitudes.

It is possible that here, with reference to the 'sounds' and 'accents' of a man of a particular ethical disposition, Plato intends to express something analogous to that which he indicates in the *Laws*, saying that 'what regards rhythm and the whole of *mousikē* is a representation of the dispositions of the best and worst men' (798d7–e1). But we must bear in mind that in this last passage Plato is referring to the representative faculty of music as a whole (as is clear by *pasan mousikēn* in 798d8–10), that is of *harmonia*, rhythm, words and dance all together, not just of *harmonia* (cf. also *Leg.* 655d5–7). In any case, what the Dorian and Phrygian *harmoniai* seem to represent is neither courage nor temperance directly; not the courageous or temperate individual, but the attitudes of courageous and temperate individuals.

In *Resp.* 402b9–c8, a little after the ethical analysis of music, Socrates confirms that the musician is the person who is able to recognise 'the forms of temperance and courage, liberality of soul and magnificence, and the qualities that are akin or contrary to these'. The reference to temperance and courage would suggest that the ethical contents of *harmoniai* should be interpreted in terms of 'forms' (*eidē*), but that does not seem plausible to me. These *eidē* seem to be more abstract than the contents of *Resp.* 399a–c (even if they are not the Forms).[67] Furthermore, the ability that Socrates describes here – to recognise certain moral qualities and their images everywhere – does not seem exactly the same as the result of musical education described beforehand: that education which conferred certain qualities on the soul, not the capacity to single them out.

Plato finds the best musical expression of a courageous attitude in the *harmonia*, considered exemplary from a point of view of both structure

[67] See Nehamas 1999, 260; Barker 2005, 46–7.

(it is not by chance that harmonic analysis is generally carried out on this *harmonia*) and moral content: Dorian *harmonia*.[68] Laches, in the homonymous dialogue, defines it as 'the only *harmonia* that is Greek', in contrast to the Ionian, Phrygian and Lydian *harmoniai* (188d6–8). This enthusiasm does not come as a surprise, since without a doubt courage is the most important virtue for Laches.[69] And as regards the Phrygian, it is not so much Laches' rejection of it here that causes perplexity, but Plato's reception of it in the *Republic*.

In *Pol*. 1342a32–b3, Aristotle notes that Socrates was mistaken in accepting the Phrygian *harmonia*, when he then rejects the *aulos*:[70] the Phrygian is to the *harmoniai* what the *aulos* is to instruments, and both of them suit a music that encourages enthusiasm and passion. Indeed the character commonly associated with the Phrygian *harmonia* is the enthusiastic character, typical of the Dionysian cult, and not the character of temperance (*Pol*. 1340b4–5; ps.-Arist. *Probl*. XIX, 48). However, it is clear that such a character does not align itself well with the objectives of a Platonic education. Plato appears to accept the Phrygian *harmonia* with the same certainty with which he gives his consent to the linear character of the Dorian; but, in the case of the Phrygian, the operation can only come about on condition that there is only a partial consideration of the character of this *harmonia*, remaining opportunely silent about the enthusiastic component.[71] The

[68] Moutsopoulos 1959, 71–3; Barker 1984, 167; West 1992, 179–80.

[69] Moutsopoulos 1959, 69 n. 9; Pagliara 2000, 179 n. 50.

[70] In *Resp*. III the acceptance of only two *harmoniai* implies the rejection of 'polychord' and 'polyharmonic' instruments (399c7–d1), such as *trigōnoi* and *pēktides* (both from the harp family, Barker 1984, 132 n. 28; West 1992, 70–5; instruments also rejected in *Pol*. 1341a39–b1, where *trigōnoi* are associated with the solicitation of pleasure), and *aulos* defined as a many stringed instrument (399d3–5), a metaphor that alludes to the capacity to produce many notes (Barker 1984, 132 n. 29; cf. *Metaph*. 1093b3–4, where Aristotle talks about the possibility of the *aulos* producing twenty-four sounds). The essential instrumental apparatus of the ideal State is made up of the lyre, *kithara* and *syrinx* (399d 7–9). In particular, on the rejection of the *aulos*, see *Pol*. 1341b3–8, where Aristotle interprets the legend according to which Athena hurled the *aulos* away when she realised that the effort to play it distorted the expression on her face, as the rejection of an instrument on the part of the goddess of wisdom on the basis that it contributed nothing to wisdom. The observation is probably connected to the difficult relationship between words and *aulos* music (Lippman 1963, 192), a matter that already emerges in a *hyporchēma* by Pratinas of Phlius (Athen. XIV, 617b–f). The legend of Athena's refusal comes from Athenian circles, when the *aulos* began to lose favour (on Alcibiades' refusal to play the *aulos*, cf. *Alc*. I 106e4–9; Plut. *Alc*. II, 5), also perhaps due to the influence of Damonian theories that attribute a negative *ēthos* to the *aulos* (Moutsopoulos 1959, 195–6). For a positive consideration of the *aulos* in the dialogues, cf. *Symp*. 215b–216b, where Socrates is likened to an *aulos* player; *Leg*. 764e, where *aulos* music is admitted into the State in the section of education relative to competition. For an analysis of the role of the *aulos* in Athenian society, cf. Wilson 1999.

[71] This is a component that Plato at least takes into consideration elsewhere (*Leg*. 790e–791b), cf. Pagliara 2000, 202–3. In *Symp*. 215c Plato shows a certain appreciation of traditional airs of Olympus composed in the Phrygian (cf. also *Minos* 318b). On the matter of the reception of Phrygian *harmonia*

Dionysian character of the music is an aspect that Plato does not seem to want to address in this passage of the *Republic* and not only regarding *harmoniai*: when he rejects the *aulos* he does not do it because he recognises its 'orgiastic' character (Arist. *Pol.* 1341a21–2), but in consideration of the technical characteristics of the instrument. The coherence that Aristotle considers to be missing in the treatment reserved for the Phrygian and the *aulos* is obtained thanks to the manner in which Plato remains silent on the most characteristic aspect of both of them.

The ethical contents of the Dorian and Phrygian *harmoniai* tally perfectly with the contents of the verbal mimesis that the future Guardians are allowed to practise (395c3–d1): following the principle in which music must align itself with words. And in the *Laws* (814e6–9, 816b1–c1) dance also aligns itself to the same expression of exemplary behaviour in war and in peace:[72] the pyrrhic, the dance of war, and the *emmeleia*, the dance of peace are the correlatives, in the field of corporeal movement, to the Dorian and Phrygian *harmoniai*. With similar expressions to those that indicate the contents of the Dorian and Phrygian *harmoniai*, the two dances are described as representations 'of beautiful bodies, involved in violent toil, in war, of a courageous soul' and 'of a temperate soul in well-being and measured pleasures'. The contents of musical mimesis were announced previously in 660a5–8, with respect to both dance and *harmonia*, which had to express, through *schēmata* and *melē*, the attitudes 'of temperate, courageous and generally good men'.

The significance of courage and temperance in Platonic reflection on music and the *psychē* encourages us to attempt a more detailed analysis of the psychological mechanisms triggered by music with these ethical contents. The idea that Plato conceives the Dorian and Phrygian as solicitations of the rational and spirited respectively (Lippman 1964, 72–3, 82) seems to sit badly with the observation in 410d6–9, where the quality infused by the

in *Resp*. III, cf. Anderson 1966, 107–9; West 1992, 180–1; Gostoli 1995; Pagliara 2000. Barker (1984, 168) presents the hypothesis that the acceptance of the Phrygian *harmonia* is based on the structural similarity between this and the Dorian (in Aristides' description of the Dorian and Phrygian they are differentiated only by a higher interval: 1 ¼ ¼ 2 1 ¼ ¼ 2 and 1 ¼ ¼ 2 1 ¼ ¼ 1). It is strange, and perhaps traceable to the embarrassment that Plato's reception of the Phrygian *harmonia* creates, that in ps.-Plut. *De mus*. 1136e–f the author also ascribes the character of temperance to the Dorian *harmonia* chosen by Plato. In the ethical contents of the Phrygian, Tartaglini (2001) sees traits of originality of the Platonic theory with respect to that of Damon (unlike, for example, Koller 1954) and attempts to explain the Platonic acceptance of the Phrygian, connecting the cathartic character that the harmony has in Corybantic rites with the '*ethos* della volontà' ascribed to it in the *Republic*.

[72] We might imagine a treatment of the dance in the *Republic* to have been analogous. Cf. 412b2–6, where Socrates upholds that to regulate other aspects of social life, choral dance cited among them, it suffices to adhere to fixed principles.

Dorian, courage, seems rather to be the result of a good musical education of the spirited. And anyway, in this excerpt, courage and temperance seem the results not only and not so much of the education of the spirited and philosophical, as of an operation of harmonisation of the two tendencies (410e10–411a1). The provocative affirmation at 412a4–7, which invites us to see a real musician in one who tunes the elements of the soul, more than in one who harmonises the strings, shows that the notion of a harmony between the elements of the soul is meaningful – and not metaphorical. After all, musical harmony, the perfect composition of opposing elements such as high and low pitched, is particularly appropriate when describing the soul of the Guardian, characterised by qualities that are opposed between themselves (410e5–6; the problem of the cohabitation of opposing psychological characteristics emerges previously in 375a–376c).

My impression is that in 398d–399c, where the influence that music exercises on the soul is evaluated according to traditional ideas on musical *ēthos* and Plato considers the soul in its entirety, the acquisition of moral habits as an effect of music is understood as an automatic process and Plato does not seem to feel the need to explain it. On the contrary, at 411e4–412a2, where the psychic effect of music is considered in relation to a deepening of the psychology (the individuation of two distinct psychic tendencies) Plato's contemplation of the question of how music infuses the soul with particular qualities is more problematic.

In Plato's consideration of musical *ēthos*, there would appear to be traces of a characterisation of the Dorian and Phrygian *harmoniai* that is even more precise: characterisation by gender. According to Aristides Quintilianus' testimony, in the Damonian theory every note is assigned a specific ethical and psychological character and a harmony had either a male or female character, in relation to the nature of the characteristic notes. In all probability, the Dorian was an example of a male harmony, the Phrygian of a female one.[73] In *Leg*. 802d–e, Plato expresses the educative need to individuate a *typos* to distinguish 'the songs that suit females and those that suit males'. Here he defines male as 'that which is noble and tends to courage', female as 'that which inclines to modesty and temperance'. It is evidently a question of characters analogous to the contents of the Dorian and Phrygian *harmoniai* in *Resp*. 399a–c. At *Leg*. 802d–e, the idea that Plato picks out a connotation for genders not only in general in songs, but also in particular in *harmonia* and rhythm, is suggested by the affirmation that

[73] Lasserre 1954, 59, Anderson 1955, 98–9, 100–1. On the differences between Damon and Plato in the connotation of music by gender, see Anderson 1966, 90–1; Barker 1984, 169. On the virile character of the Dorian *harmonia*, cf. Arist. *Pol*. 1342b12–14.

it is necessary to harmonise 'male' and 'female' songs with rhythms and *harmoniai* (802d8–e1). The passage seems to be affected by the Damonian connotation of *harmoniai* and rhythm according to gender[74] – and traces of this connotation reappear elsewhere in the *Laws*. In 669c3–5, listing the errors that the Muses (unlike contemporary poets) would never commit when composing music, the Athenian is also referring to the attribution of female *schēma* and *melos* to manly words. Such an affirmation leaves one to imagine the existence of a classification of musical elements by gender.

Now, it seems that adherence to the theory of *ēthos* in this aspect is difficult to reconcile with the idea (present both in the *Republic*, and in the *Laws*, as an original aspect in the conception of order in the State) that the differences of sex contain little with respect to gymnastic and musical education. In this respect, it is not so much the passage in the *Laws*, 804d–805b, where, it would seem, the Athenian is concerned above all to show that women can and should perform the same physical exercises as men that is of interest. In particular, a passage of *Resp*. v is noteworthy, where Plato endeavours to show that it is not only possible, but also desirable (457a3–4) that women receive the same education as men and he develops an interesting reflection on the differences of the genders. Here I would like to raise just one point. The statement that 'it is not against nature to impart music and gymnastics to the Guardians' women' comes from the idea that the figure of a 'guardian woman' (*phylakikē gynē*, 456a7) could be proposed: it is also possible to find within a female nature the philosophical characteristics (animosity, love of knowledge, an aptitude for gymnastics and for war) on which music and gymnastics intervene.[75] Once more, the impression is that it is impossible to superimpose the passages in which Plato seems to adhere, with a certain level of fidelity, to the theory of *ēthos* on those in which the reflection on the use of music to form the character makes use of results that Plato obtained in an analysis of the psychological mechanism.

In *Leg*. 669c5–d2, having reflected on the erroneous mix of 'male' and 'female' musical elements, the Athenian contemplates the possibility of another mistaken combination: that of the musical elements of the free man and the slave. There appears at this point an explicit reference to rhythms and their ethical content (669c6: *rhythmous doulōn*, 669c7: *rhythmous kai*

[74] Moutsopoulos 1959, 219 n. 16; Barker 1984, 162 n. 103.

[75] 456a1–8. In *Tim*. 18c1–4, recalling the idea in the *Republic* of imparting the same education to women and men, Plato uses the verb 'harmonise' (*synharmosteon*) to indicate the action of making female souls similar to male: the verb recalls the effects of music on the soul.

schēma eleutherion). In the *Republic* the rhythmic element is supposed to express the same character represented in the *harmoniai*, following the principle of expressive uniformity between the elements of *mousikē* (399e8–9): the rhythms 'of an ordered and courageous life' will be chosen (399e10–11). It is a question, as in the case of the *harmoniai*, of determining a mimetic content (400a7) of well-defined boundaries: referring, for example, to 'feet that are appropriate to meanness, arrogance, madness and other vices' (400b2–3: *tines te aneleutherias kai hybreōs ē manias kai allēs kakias prepousai baseis*). But with regard to rhythm the connection of an ethical character to a musical element does not appear that immediate. Glaucon admits knowing only that there are 'three forms, out of which feet are woven, as in the case of sounds there are four forms, from which all the *harmoniai* derive' (400a4–7).

As regards rhythms, perhaps these 'forms' are models distinguished on the basis of the rapport between the length of the up beat and the down beat, a ratio of 1:1, 2:1 or 3:2.[76] It is probable that it is this ratio that in part determines the *ēthos* of a rhythm, besides the traditional association with the *harmoniai* of a particular character. For example, a rhythm with *arsis* and *thesis* of equal duration could be associated with a composed *ēthos*, while rhythms with different ratios could express a more mobile character.[77] Notwithstanding the difficulty of 'being Damonian' that the protagonists of the *Republic* encounter at this point, Socrates establishes a principle that could well be called Damonian: even rhythm, like the other elements of *mousikē*, is an expression of the character of the soul. Beauty and its

[76] Cf. *Phil.* 17d4–6, where the rhythms and metres are defined ratios (analogous to those of the *harmoniai* between high and low pitched) that manifest themselves in the movements of the body and are measured by numbers. The reference to four 'forms' from which all the *harmoniai* derive is more problematic. Analogous to the rhythms, it should be a question of the four ratios that express the fundamental interval of the octave, fifth, fourth and tone (2:1, 3:2, 4:3, 9:8); but moving away from these relationships it is only possible to construct the *harmoniai* in diatonic and chromatic genera, and not in the enharmonic on which the first theoretical analyses are presumably based. According to a further interpretation, the four 'forms' of the *harmoniai* are the notes of a tetrachord, but working from these it is not possible to form all the *harmoniai*. Another possibility is that it is a question of a qualitative and not a quantitative distinction, linked to the Damonian classification of notes into four types: one male, one female and two composite, one of male predominance, another of female predominance. The analysis of the first two interpretations and the proposal of the last are to be found in Barker 1984, 133 n. 35 and 169.

[77] Socrates refers to the iambus, the heroic, composite enoplion, dactyl and trochaeus. In *Pol.* 1340b7–10, Aristotle limits himself to stating that some rhythms have a more stable *ēthos*, others a more agitated one, and of these some have more vulgar movements, others more noble, without indicating to which characteristic of rhythm these expressions should be attributed. In *Poet.* 1459b37–1460a1, he recognises the iambus to have a 'colloquial' and 'active' character, and in 1459b34–5 he defines heroic 'the most stable and stately' verse. On rhythms, the *ēthos* and the passage in the *Republic* in question, see Lasserre 1954, 67–9; Moutsopoulos 1959, 77–80; Barker 1984, 133; West 1992, 157–9, 243–4; Wallace 2005, 149–53.

absence go with good and bad rhythm;[78] these in turn (like good and bad *harmonia*) follow the good and bad discourse (400d1–4). Furthermore, the discourse follows the character of the soul (400d6–7): hence in the good discourse, *harmonia*, beauty and rhythm all follow the goodness of the soul (400d11–e1). Perhaps we can trace a connection between these considerations and the Damonian principle for which good music comes from a soul with analogous characteristics (above, pp. 29–30).

The idea that music is in some way within the human soul also appears in the *Laws*, in a recurrent theme in the consideration of music there present. Every animal has the tendency to move and shout, but only man draws music from this, because he possesses the ability, that is pleasurable, to perceive what is well rhythmed and well harmonised (654a2–3: *tēn enrhythmon te kai enharmonion aisthēsin meth'hēdonēs*, cf. 664e3–8). So, the faculty of recognising that which has a value in musical terms is an innate capacity: here termed *aisthēsis*, a sort of elementary sensation. It is certain that this is largely connected to a physical dimension, nonetheless this *aisthēsis* concerns the soul. That the possession of this faculty is man's prerogative leads us to believe that it has something to do with the most noble part of the soul, characteristic of the human *psychē*. In any case, reading *Leg*. 653d–654a, it is difficult not to think that the wholly human instinct to grasp that which is musical has to do with the musical origins of the rational human soul, described in the *Timaeus* (below, pp. 189–95).[79] It seems to me that in this accentuation of the 'humanity' of musical experience it is possible to find a further point of contact with Blacking's reflections (above, p. 31): in particular with the fascinating definition of music that he gives as 'humanly organised sound' and with the idea that musicality is 'a universal species-specific characteristic' (1973, 3–31, 116). These observations lead Blacking to study music as an expression of aspects of the experience of individuals in society (1973, 89), and as such we can analyse the phenomenon of *choreia* in the *Laws*.

'Choréia una e trina' – according to Zieliński's definition (see Tatarkiewicz 1979, 29) – is an expression of the solid union of different elements, which Plato is looking for in musical experience (664e8–665a3).

[78] 400c7–8: *to tēs euschēmosynēs te kai aschēmosynēs tōi eurhythmōi te kai arrhythmōi akolouthei*. *Euschēmosynē* is the term used in 401d8 to indicate the good form that music confers to the soul (above, pp. 20–1). Barker (1984, 134 n. 39) brings to light the link between this term and that commonly used to indicate a figure of dance (*schēma*).

[79] Cf. *Poet*. 1448b20–1, where Aristotle too seems to perceive a certain naturalness in the human use of music, in a passage in which rhythm and harmony are paralleled in a significant manner, to mimesis, another natural practice for man. Cf. ps.-Plut. *De mus*. 1131d, where the quality that the gods conceded exclusively to man is the 'articulated voice'.

It is a complex system in which physiological impulses to use the voice and move the body are disciplined within precise categories, according to human sensitivity to musical order. The categories are: melody (rhythm and *harmonia*), characteristic of the voice, and figure, that belongs to corporeal movement; rhythm being common to them both (672e5–673a1).

Now, such a framework also indicates the passage from a physical plane to a psychic and ethical plane: musical use of movement and of the voice is a fact that concerns above all the soul. Hence, when confronted with expressions of the *choreia* it will not be sufficient to point out whether the movements of the voice and those of the body are correct in physical and musical terms, it is also necessary to individuate their ethical content. '"Sings well" we say "and dances well", but should we add "sings and dances good things" or not?' asks the Athenian Stranger at 654b11–c1. To recognise that music has the capacity to educate means confronting not only the technical fact of musical expression, but also the ethical content that it carries. And the questions that the Athenian Stranger then poses suggest that the moral content is more important than the technical form. Is the person who can correctly recognise and employ beautiful or ugly better educated in choric dance? Or one who manages to represent with voice and body what is considered beautiful, without however enjoying the beautiful and rejecting the ugly? Or, finally, one who is not able to direct body and voice in the best manner, but is capable of correctly directing pleasure and pain towards the beautiful and away from that which it is not? (654c3–d3). It seems very important to note that here Plato is not asking who is better educated in general, but who is better educated in the art of choric dance (654c4–5) and yet, he also contemplates the case of one who is not well able to sing and dance. When the Athenian maintains (654d5–7, e3–7) that it is necessary, when analysing the discourse on education, to flush out the beauty in figures, melodies, songs and dances, it is clear that he is talking about a concept of beauty with strong psychological and moral implications.[80]

The ethical theory of music is the prey that the interlocutors of the *Laws* must flush out, as if they were hounds (654e3–7). Like Socrates and Glaucon in the *Republic*, very soon they will find themselves talking about different musical representations of virile or cowardly souls in difficulty; but here the attention to the representative possibilities of music suddenly seems

[80] An influence of Platonic passages (cf. also *Resp*. 401d–402a) in which sensitivity to the beautiful infused by music is underlined, is detectable in ps.-Plut. *De mus*. 1146a–b: 'He who has practised the educative aspect of music and from youth has received adequate attention, will praise and accept the beautiful and criticise the contrary in music as in every other sphere.'

much stronger. Kleinias notes that the different attitude of the courageous and the coward is obvious even in the colour of the face; and the Athenian Stranger answers that music, based on rhythm and *harmonia*, can express itself only through figures (*schēmata*) and melodies (*melē*): it is correct to speak of *eurhythmia* and *euharmostia* in relation to music, but it is not correct to use the expression 'well coloured', as choir masters are given to doing in a metaphorical way.[81] Barker (1984, 143 n. 61) notes that Plato here marks a difference between attributes that can be referred as much to music as to people in a non-metaphorical sense (well rhythmed and well harmonised, for example) and characteristics attributable to music and people only if used in a metaphorical sense, like the right colouring. These remarks on colouring reconfirm how intense the attention is to the mimetic properties of music in this passage of the *Laws*: the Athenian could have entirely avoided the precision, simply interpreting Kleinias' observation on the different colour of the brave and cowardly in a metaphorical sense, but referring to the moral sphere.

In any case, the representative possibilities of music are such that in the real sense one can speak of them as a figure and a melody representing the coward and the courageous person (655a8–9). This consideration confirms, once again, that musical representation of moral qualities has quite precise boundaries. It also seems that the quality of the content represented is the one aspect on the basis of which the beauty of music can be judged (655b1–2), music in which ethical and aesthetic values can be perfectly superimposed: all the melodies and figures that represent the virtue of body and soul are beautiful, the opposite are ugly (655b3–6). In this passage the expression '*eite autēs eite tinos eikonos*' seems rather problematic: it is not easy to understand in what sense music can bear virtue in itself and as a consequence it is not easy to understand the meaning of *eikonos*. The problem appears to be analogous to that posed by *eikonas* at *Resp*. 402c6 (above, p. 44).

The idea of a superimposition of ethical and aesthetic contents, seen simply here (655b3: *haplōs*), is elsewhere revealed to be anything but clear. On many occasions in the treatment of music in the *Laws*, Plato reaffirms this principle and refutes theses that would weaken it: it is a question of showing that pleasant music is not necessarily good music. This analysis strikes me as all the more interesting in that it is carried out by a Plato who shows himself to be well aware of the hedonistic value of music. We should not underestimate the fact that he individuates the presence of pleasure

[81] 655a 4–8; see Restani 1983, 179–80.

in the first rousing of musical sensation in man (653a5–7); but even more relevant seems to be the observation that, in the *Laws*, the infusion in the soul with particular qualities occurs through pleasure. In 655d–656b, the reaction to a musical representation of a person with a good nature but bad habits is taken into consideration: one who in his heart enjoys figures and song that he does not dare praise in public. For such an individual it is possible that music be at the same time pleasurable and bad, but to enjoy evil melodies and figures causes damage, just as it is advantageous to feel pleasure for the opposite expressions, because it is inevitable that one becomes like something for which one feels pleasure (655e5–656b7).

Thus, pleasure seems to play an important role in the mechanisms with which music exerts ethical power over the soul,[82] and this observation reinforces the idea that such mechanisms regard a psychic dimension that is profoundly linked to sensibility. The affirmation for which the process of assimilation occurs even if the pleasure felt for bad music is accompanied by a certain awareness of this aspect – an awareness that manifests itself in shame at publicly confessing one's own pleasure (656a2–5, b5–6) – shows that to confer on the soul a certain habit, music intervenes on the least rational components of man. Furthermore, it does not seem to be by chance that this attention to musical pleasure emerges in a work in which musical education is understood to be an intervention on the sensations of pleasure and pain. The conflict in the soul of a person who enjoys bad music seems to have to do with the appetitive and spirited element, and to end up in favour of the first. In 656b1–7, Plato draws a parallel between the fruition of bad music and the company of the wicked and says that one who feels pleasure by frequenting the wicked criticises them almost jokingly and sees evil 'as in a dream'. This leaves us to imagine a certain weakness in the element that opposes the one that feels pleasure.

However it is important to note that the musical pleasure of which Plato speaks here does not derive from acoustic and visual sensations produced by melody and dance; it derives from the representative content of music: the *charis* that choric dance brings about ensues from the 'découverte de

[82] The reference to 'similarity' recalls the concept of Damonian theory in which music forms the character *di' homoiotētos*. According to Morrow (1993, 308) the original motive in *Leg*. 655–6 is the emphasis placed on the pleasure of he who sings or dances as a criterion to establish his level of culture. On pleasure in the work that music carries out in the soul, cf. Arist. *Pol*. 1339a23–5: '. . . music confers an *ēthos* of a certain type, getting used to the capacity to feel pleasure correctly', but in this passage pleasure seems to concern the outcome of music's work (as in *Leg*. 659c9–e5), while in *Leg*. 655e–656b it concerns the mechanism itself through which music acts on the soul. The need that music be experienced with pleasure comes up again in 665c2–8, the passage in which Plato even gets to the point of conceiving a certain *poikilia* in the simple musical system projected.

la ressemblance',[83] from the recognition of moral content. This makes one think of a more complex involvement of the soul, that must individuate that content and react in terms of pleasure or disgust. But perhaps such an idea comes from our difficulty in conceiving of musical mimesis and the processes with which it acts in ethical theory. If – as we have seen – the ethical contents are very closely connected to the physical elements of music, then feeling pleasure for the good or bad that rhythm, *harmonia* and dance represent does not involve psychic processes that are so different from those linked to hearing rhythm and *harmonia* and to seeing dance. In any case, *Leg.* 655d–656b shows that two fundamental themes in the analysis of music in the *Laws* – pleasure and mimesis – are closely connected to one another.

First of all, it is precisely the idea that music is a mimetic art that reveals the inadequacy of pleasure as a criterion by which to judge. This inadequacy emerged in the passage that we have just analysed: at 655c8–d2, the conviction of the majority that 'the correctness of music resides in its capacity to give pleasure to souls' (*mousikēs orthotēta einai tēn hēdonēn tais psychais porizousan dynamin*) is defined as intolerable and even impious; but the reproof is not justified and above all there is no indication of what 'correctness' of music actually is. In 658a–e, we find an ironic description of the relativism that a hedonistic position leads to in the matter of artistic judgment. If the criteria were pleasure, children would choose puppets; older children would choose comedy; educated women, young people and the entire populus would opt for tragedy; the aged for Homer and Hesiod's poetry. This image of a popular jury, inspired solely by pleasure, recalls the image in the *Gorgias* (464d–465a) of the doctor and the cook competing for the right to look after the body, before a jury of children. We can consider the doctor and cook in the *Gorgias* to be equivalent to the legislator and contemporary musician in the *Laws*, the former who proposes that music adapts in order to cure the soul, and the latter who is only concerned with pleasing the public. The idea that music possesses a precise correctness and that this does not consist in the pleasure provoked, leads on the one hand, to a negation of the possibility of a democratic musical aesthetic, and on the other to the need for poets and musicians to compose a correct music, not just responding to the tastes of the public. In 659b–c, Plato deplores the situation in Sicily and Italy regarding the well-rooted habit of composing according to the 'vulgar pleasure' of the public. In 700a–701b, he refers with nostalgia to the age when music

[83] Schuhl 1952, 44; Wersinger 1999, 76.

was well regulated and not subjected to popular judgment and he also expresses a bitter criticism of contemporary 'theatrocracy', considered the beginning of a progressive degeneration of customs. It is interesting to note that what is considered the reprehensible behaviour of poets and musicians in the *Laws*, is considered normal behaviour in a passage in the *Gorgias* (501d7–502c1), where music passes for an activity that only follows pleasure. However, although the condemnation implicates a great part of music (*aulos*-playing, *kithara*-playing, choric), the only musicians cited are Kinesias and Meletus, interpreters of the new musical trends.[84]

In the *Laws*, the alternative to musical criticism characterised by hedonism does not exclude pleasure from the sphere of musical judgment, but leaves the judgment of music only to the best. The tones of the affirmation in 655c8–d3 are dimmed: the Athenian Stranger declares himself to a certain extent in agreement with the widespread opinion according to which music should be judged on a basis of the pleasure that it brings, provided that it is the pleasure of the best, of those who excel in virtue and education (658e6–659a1). In relation to musical taste as well – and indeed so that musical education could have an effect – it means tuning in unison the sensations of pleasure of the majority with the sensibility of the best (659d1–4). In the *Laws* VII, the Athenian shows that the education of musical pleasure passes through habit: one who grows up with a temperate and ordered music detests the contrary; one who grows up listening to sweet popular music considers the other cold and disagreeable (802c7–d3). In compliance with the reflections on correctness and pleasure developed in the *Laws* II, the accent is placed on the non-objective character of pleasure, kindled as much by one music as by another (802c6: *to d'hēdy koinon pasais*), and on the objective and discriminating value of the ethical effect (802d3–6).

In *Leg.* 667b–669c, the limits of pleasure as a criterion of judgment are clearly laid out in relation to the mimetic nature of music and we can fully understand the concept of correctness. Music cannot be judged on the basis of pleasure because it is a 'representative and mimetic' art.[85]

[84] Moutsopoulos 1959, 288 n. 7. Cf. *Resp.* 493a–d, where Socrates criticises the compliance to the 'Diomedian necessity' to soothe the multitude, in the exercise of political activity and in artistic forms such as painting and music. Aristotle seems to be of a different opinion on democratic judgment in music: in *Pol.* 1281b4–10 he says that in music and in poetry, just as elsewhere, the judgment of the many is better than that of the single man; but as Leszl notes (2004, 160), it is a question of the educated 'many'. For a modern reflection on the relationship between musical taste and social, emotive and cognitive factors, cf. Konečni 1982.

[85] 668a6–7: *oukoun mousikēn ge pasan phamen eikastikēn te einai kai mimētikēn*. In his preceding remarks (667b5–668a4) the Athenian showed that one can feel pleasure for an agreeable thing, for

As such, it must be judged on the basis of a criterion of qualitative and quantitative conformity with the model (668b6–7; cf. 667d5–7), and this means knowing the essence of a musical work, its intention and that which it is representing (668c4–8). It seems that here Plato is bringing attention above all to the need to show the mimetic nature of music to exclude pleasure as a criterion of judgment and he is not concerned with distinguishing mimesis of the plastic arts from mimesis of *mousikē*. Such an impression is confirmed by the example presented immediately afterwards. In the case of representations perceived through sight, knowledge of the model represented allows *everyone* to express a correct judgment: it means assessing whether the proportions and the reciprocal relationships between parts, colours and contours have been preserved.[86] In general, to judge a representation intelligently – pictorial, musical or any other type – it is necessary to possess three requisites: knowledge of the original, of its correctness and of the perfection of the representation. The only peculiarity of music from the other mimetic arts is indicated in the greater appreciation that is reserved for it. As a consequence of this peculiarity, to commit an error in the field of music causes serious damage because it leads to bad habits; and furthermore, it is quite difficult to define imprecision in the subject of music, because poets are greatly inferior to the Muses (669b6–c3). The passage continues with the description of errors (above, p. 48), deriving from an incorrect use of the representative properties of musical elements.

something that has a value or perfection, for something useful; pleasure can only act as a criteria of judgment in the first category, for the others the criteria of truth is needed. A reference to musical mimesis also appears in *Phil*. 62c1–2, but in a context in which music undergoes a devaluation, in the sense that it is considered a technique based on experience and conjecture (56a3–7; cf. below, pp. 136–8).

[86] 668d7–e5. On the possibility of spotting a reference to Polyclitus' style here, cf. Schuhl 1952, xvii; Guidelli 1999, 31. A comparison between the mimetic qualities of music and of painting also appears in *Crat*. 423c11–d9, where Socrates, after defining the noun 'imitation of everything that can be imitated with the voice' (423b9–11), specifies that it does not mean the same vocal imitations produced by music or painting; unlike onomastics, music and painting do not reproduce the essence, but *phōnē*, *schēma* and *chrōma* of the *pragmata*. Here Plato does not seem to be referring to the bad mimesis of certain musicians (Moutsopoulos 1959, 294), but to musical mimesis in general. As in the *Laws* (and with all the more reason, since in *Crat*. 423b–d the musical argument is incidental), Plato does not distinguish between musical and pictorial mimesis. Whereas *Polit*. 306c10–d4 could be a reference to negative musical mimesis, where there is mention of images of certain qualities – readiness, speed of body and soul and emissions of the voice – produced by 'mimetic music' and by pictorial imitations. In Arist. *Pol*. 1340a18–39 the difference between the mimetic capacity of music and painting is indicated by the fact that music is fully able to represent customs, while painting only possesses the capacity in a limited measure and indeed, using shapes and colours, does not directly reproduce customs, but 'signs' of moral attitudes. Cf. Halliwell 2002, 44, for whom the parallel between musical and visual arts under the category of mimesis was widespread in the time of Plato.

Now, the inexperience of poets does not concern the content of musical representation, but only the use of musical elements. In 670e4–6, Plato maintains that it is absolutely not necessary that a poet possess the third requisite: the capacity to recognise whether a representation is good or not. It is sufficient for the poet just to know about harmony and rhythm.[87] This precision appears in a place in which diverse levels of musical specialisation are individuated (670b–671a). The poet is halfway between the people, who sing and play without sufficient notions of *eurhythmia* and *euharmostia*, and the older singers, to whom a higher level of specialisation is reserved. These latter must have an acute sensibility and knowledge of rhythm and *harmoniai* to satisfy the second requisite (the ability to recognise the 'correctness' of a musical representation 670b2–6); but they must also possess the capacity to examine moral contents that are represented musically to satisfy the third requisite (the ability to choose the morally beautiful musical representation 670e6–671a4). At 812b9–c7 the two aspects are connected: the possession of an acute perception regarding rhythm and the combinations of *harmoniai* is necessary to judge if a melodic mimesis has been well or badly done and to determine the similarity to good or bad models.

We may note that mimetic nature, which makes a popular judgment at least possible in the case of other arts (669a5–6), makes music an art that can be judged only by the few. As with all mimesis, it is necessary to know the model and mechanisms through which it is realised, when faced with a musical representation; but in the case of music this signifies possessing complex requisites. The ways in which music represents examples of virtue poses serious difficulties, and not only for the people in the Platonic State who are inexpert in music, or for the poets who know just enough about music to be able to compose. The mechanisms of musical representation – hence the nucleus of the theory of *ēthos* – remain obscure for the modern reader, who, when analysing these passages on musical mimesis, must also confront the complex Platonic consideration of artistic mimesis in general.

At this point, it would be appropriate to draw attention to Koller's hypothesis (1954), according to which the concept of mimesis, indicating 'representation' and only later 'imitation', is originally linked to and limited by the sphere of music and dance, i.e. of the expressive manifestations of *mousikē* ('tänzerisch-musikalische Darstellung'); this concept is broadened by the reflections of Damon and the Pythagoreans in the field of theories

[87] 670e3–4: *to gar triton oudemia anagkē poiētēi gignōskein, eite kalon eite mē kalon to mimēma, to d' harmonias kai rhythmou schedon anagkē*. In *Leg*. 801b10–c1, the poets' inability to distinguish good from bad is underlined.

of musical *ēthos*. Beyond the validity of single aspects of the hypothesis,[88] the idea – more general than Koller's thesis – that there exists a notion of mimesis connected to the dimension of music, dance, pantomime and poetry, besides mimesis of the plastic arts[89] might help explain the Platonic reflection on the mimetic nature of music and to consider it in the right relationship with a general analysis of the notion of mimesis. Moreover, it seems opportune, treating musical mimesis in Plato, to have the forethought used by Halliwell apropos of mimesis in general:[90] to avoid conferring the term *mimēsis* with the sense, restrictive and not neutral, of 'imitation'. To speak of musical 'representation', rather than 'imitation', leads to a better comprehension of the mechanisms with which the various elements of *mousikē* express ethical and emotive content.

Indeed, the *choreia* in the *Laws* appears as an example of the notion of mimesis that indicates the representation produced by means of the voice and movements of the body (see Koller 1954, 25–36). But some passages of the *Laws* encourage a deeper analysis and the distinction of the expressive capacities of single musical elements. As we have seen, the movements of the body in dance are understood as representations of attitudes defined in an ethical sense; such attitudes emerge from the mimesis of bodies and souls (814d7–e9, 816d3–4) grasped in particular situations and dispositions. The moral fact seems closely connected to the physical aspect: there exists a representation of beautiful bodies and it is dignified, and of an ugly body and it is ridiculous.[91]

It is not very clear how such precise aspects can be reproduced through movements of the body, and the text only offers two short descriptions of the movements of dance. The first (815a7–b3) concerns the mimesis of the best dispositions, courage and temperance: it is produced by a linear movement of the bulk of the body. A further indication of the relationship between interior disposition and movements of the body appears at 815e4–816a3. Here Plato says that in dances that are not warlike (among which we find *emmeleia*, the expression of temperance) the movements of

[88] For a criticism of Koller's theory, see Else 1958; Nehamas (1999, 258–60) compares the two positions.

[89] Lippman 1963, 190; 1964, 47, 55; Nehamas 1999, 258; Halliwell 2002, 19.

[90] Halliwell 2002, 6 n. 15, 13–14, 16; 2005, 44–5.

[91] 814e3–4. Choric mimesis of that which is not worthy is not abolished, because knowledge of deplorable behaviour is recognised as having an educative value; however only slaves and stipended foreigners perform such representations, not citizens (816e5–10), because of the formative power attributed to mimesis (cf. *Resp*. 396a4–6). Outside the educative programme there are also the Bacchic dances and such like, representations of inebriated men who officiate at the rites of purification and initiation. We note that these dances are rejected as they are unclassifiable and their intentions difficult to understand: we cannot really call it a condemnation, and it is not surprising that in 790e–791b Plato considers the positive cathartic effects of these ritual dances (815b7–d4).

the body are directly proportional to pleasure: the individual who is more moderate and more drilled to courage expresses himself with small variations of movement, whereas the cowardly individual who is not trained to temperance carries out greater and more violent changes.[92] The passage strikes me as very interesting because it describes how diverse categories of interior dispositions are translated into artistic dance movements: first the sensation of pleasure, then moral characteristics, in part defined by their relationship with pleasure (such as temperance). Now, it is not clear what connects the interior disposition to physical movement, even though it is quite clear that a specific representative capacity and a specific ethical power are recognised in dance. The idea, expressed soon after, that at the origin of dance there are natural gestures that accompany the movement of the voice, in song or discourse, and the idea that dance is a sort of representation (by means of figures) of verbal expressions lead us to believe that the link between psychic and physical is constructed through musicality and the rhythm of words.[93] The movements of the body are projections into space of the ethical content of the discourse.

The *Laws* invites us to recognise autonomous representative qualities in the other aspect of choric dance too, *melos*. The clearest indication of this is 669d5–e4, one of the few passages in which Plato directly considers the release of music from words. Among the errors committed by poets, the practice of treating the elements of *mousikē* in an independent manner is cited. There is the use of words in verse, but without music, because the rhythm and figures have been removed from the melody. There is also the execution of melody and rhythm without words, by the use of the bare sound of the *kithara* and *aulos*. The problem with absolute music lies in the difficulty of understanding its intentions and which morally good representation it resembles.

We will recall that understanding the intention of a musical work and of the reality of which it is an image (668c6–7) were cited as necessary notions in the judgment of music. The problem of absolute music does not seem

[92] In *Resp*. 397b–d, a little before treating music in the strict sense, but already using technical language, Plato attributes *smikrai metabolai* to unequivocal mimesis of the good man, as it is produced by the use of single rhythm and a single *harmonia*, while the mimesis of *phauloteros* needs all the rhythms and all the *harmoniai* because it contains every type of variation within itself; the rejection of the *aulos*, for being a 'panharmonic' instrument, is also the rejection of a music that is rich with modulations. In a technical sense *metabolē* indicates the passage from one tone, genus or system of tetrachord to another and the practice is associated with the style of New Music, but in Platonic reflection musical meanings of the term combine with the ethical and political (Restani 1983, 157–77; Barker 1984, 128 n. 13).

[93] 816a3–6. Cf. 795e1–2, where dance that expresses that which is lofty and liberal is considered mimesis of *Mousēs lexis*. Cf. Wersinger 2002, 13–14.

to derive from an intrinsic characteristic of rhythm and *harmonia* – i.e. the lack of representative and ethical potential – but from the techniques with which they express the ethical content and from the limits of the human capacity to judge an instrumental piece of music (Halliwell 2002, 243 n. 20). Absolute music is not to be found outside an axiological dimension, but it is hard to ascertain its place within this sphere of moral values. We can clearly see that Plato recognises the existence of melodic mimesis, while denouncing its obscurity. After all, in the treatment of the *harmoniai* and rhythms in the *Republic*, the fact (in this case unquestionable) that instrumental music has precise ethical and mimetic qualities emerges. However it is difficult to reconcile fully the perplexities in *Leg.* 669e with the treatment of *mousikē* at *Resp.* III.[94] To match music and words that are expressions of the same ethical content – an operation carried out in *Resp.* III – it is necessary to grasp the representative content of *harmonia* and rhythm, but this operation is anything but simple, as indicated at *Leg.* 669e. In other words, it is not easy to grasp the *ēthos* of absolute music and therefore of its relationship with the *ēthos* of the verbal component.

Faced with such a question, it is necessary first of all to bear in mind the context in which the observation on absolute music in *Leg.* 669e appears. It is in a long discourse by the Athenian that opens with the consideration that *mousikē* requires an extremely cautious analysis: errors can be made that are very damaging and imperceptible even to the poets themselves. The observation on absolute music forms a part of a criticism of poets who do not hesitate to use the bare sound of instruments, creating virtuoso parts, but not art (670a1–3). Throughout the discourse, the distinction between a correct and useful way of understanding *mousikē* (that of the Muses and the legislator) and an incorrect and damaging manner of understanding (that of the poets) seems quite evident. To comprehend *mousikē* and its effects is arduous: preparation and caution are obligatory. For this reason the organisation of musical life must be placed in the hands of a few experts: obviously not musicians, but individuals who are fully aware of the representative and persuasive mechanisms of every element of *mousikē* and of the ethical content that must be entrusted to musical language. In this sense, the obscurity of absolute music is another reason (perhaps the strongest here) to remove the management of *mousikē* from the poets and entrust it to the few who are able to take on the *difficulty* (not the *impossibility*) of understanding the messages of instrumental music. Behind the criticism of the poets' practice of using absolute music there appear

[94] Anderson 1966, 73–4, 101, 106–7.

to me to be two reproaches that are linked to one another: that of using an effective language, but with evasive contents, potentially communicating negative messages; and that of using it *lightly*, without keeping the formative value of *mousikē* to the fore, but thinking rather of the public's pleasure.

Obviously, a certain amount of doubt persists about the possibility of the 'experts' effectively managing to decodify the language of instrumental music and to couple it perfectly with words. And clearly a failing in this aim would throw into crisis the Platonic project of *mousikē* in which every element expresses, in its own way, the same valid ethical content. In the *Laws* these problems are confronted whereas they do not seem to be touched on in the *Republic*. I would suggest that the fundamental difference between *Resp*. III and *Leg*. 669e lies not in the trust accorded to the communicative potential of absolute music, but in the difference in attention given to its representative dynamics. In *Resp*. 398–400, the combining of *harmoniai* and rhythms and certain verbal content seems to occur in an automatic manner, as if on the basis of a codification, that could coincide in part with the reflections of the theory of *ēthos*. In the *Laws* Plato appears to realise that, beyond that codification, we find ourselves in a complex and dangerous communicative dimension. He continues to believe that absolute music has its own effective language, and that it is possible and necessary to entrust it with ethical messages; but he is also aware that the question is considerably more complex than it might seem through the exchange of remarks between Socrates and Glaucon in *Resp*. III.

The reference to instrumental music at *Leg*. 669d–e is preceded by an interesting observation on a type of bad mimesis. The Muses – says the Athenian Stranger – unlike the poets, never mix the sounds of animals, men, instruments and other types of noise as representations of a single reality (669c8–d2). The reference to the calls of animals turns up again at 669e5–670a2 in relation to instrumental music: here Plato defines as vulgar the research of speed, technical ability and the voices of animals, so as to lead to the use of *aulos* and *kithara* beyond what would be necessary for dance and song – the use of the bare sound of instruments is considered the expression of *amousia* and *thaumatourgia*. Some terms in this section recall passages in the *Republic* in which Plato confronts the theme of mimesis. In 396b5–7, dismissing the possibility that the future Guardians dedicate themselves to a mimesis indiscriminate of every reality, Plato is referring to the reproduction of animal calls and noises of nature; and in 397a1–b2 the sounds of diverse musical instruments are added to them. This act of

mimesis is defined, in metaphorical terms, as a musical discourse rich with *harmoniai* and rhythm.[95]

Perhaps, even behind this multiform mimesis, we can read an allusion to the style of the new musicians. The increase in the expressive potential of instruments may have opened the way to a musical mimesis of sensible reality[96] that in the eyes of Plato must have taken on the traits of a distortion of the nature itself of music: a mimetic nature certainly, but where mimesis means the representation of ethical dispositions and not of reality in becoming. If music becomes the art of 'turning the mirror round' (*Resp*. 596d–e), putting on shows, then it is similar to painting, a maker of illusions.[97] It is not by chance that the term used in *Leg*. 670a2 to indicate the undisciplined use of the bare sound of instruments – *thaumatourgia* – has the same meaning as the term that appears in *Resp*. 602d3 to indicate the effect of a certain misleading type of painting, *thaumatopoiia*. In the same way as the *skiagraphia*, the mimetic musical instrument can create illusions (in this case, acoustic), taking advantage of the weakness of the sensations. And in *Resp*. x, where the attention is turned to mimetic art that acts more through hearing than sight (603b6–7), we note another nod to the expressive value of musical elements: in 601a4–b3, Socrates associates the poet's ability to appear competent on any subject with the use of metre, rhythm and *harmonia*, which are naturally endowed with an enchanting power. But to denounce the danger of the 'colours of music'

[95] Cf. 397c3–6. Koller (1954, 19–21) sees the introduction of the musical concept of mimesis in these two passages, defined in the ethical sense, instead of the technical concept of mimesis, that characterises the treatment of poetry. Else (1958, 83–4), on the other hand, maintains that the two passages refer to mimesis '*per vocem et gestus*'. Nonetheless, on the one hand, the musical aspect is suggested by the metaphorical reference to rhythms and *harmoniai*; on the other, the parallel drawn with *Leg*. 669c–670a leads us to believe that instrumental music plays a role in this undisciplined mimeticism. On technical musical terminology in *Resp*. 397c, see also Chailley 1956, 151 n. 4.

[96] Moutsopoulos 1959, 248. On the style of the new musicians, see Schuhl 1960, 102–104, 108. Plato, in *Leg*. 700d7–8, criticising the bad habit of contemporary poets to mix musical elements improperly to obey the tastes of the masses, talks of the practice of imitating the melodies for the *aulos* with the melodies for the *kithara*; but what he ascribes to contemporary musicians is a practice which had probably already been introduced in the sixth century, by Lasus of Hermione, capable of performing arias for the *kithara* on the *aulos*, through the introduction of a particular sort of tuning (and presumably he attempted to reproduce with the strings those fourths of a tone that are easily attainable with the *aulos* by partially blocking a stop, cf. Lasserre 1954, 34–44; Comotti 1979, 27–9; West 1992, 342–3). Cf. *Resp*. 399d4–5 where 'panharmonic' instruments are defined as 'imitations of the *aulos*' and the *aulos* is defined *polychordotaton*. On the possibilities of the *aulos* imitating the human voice, see Else 1958, 77. Also the practice of using instrumental music to reproduce sounds from sensible reality must be an ancient practice, if an example of mimetic music can be considered to be the *polykephalos nomos*, a piece in which the *aulos* imitates the lament of the Gorgons for Medusa, killed by Perseus.

[97] On mimesis in *Resp*. x and in particular on the metaphor of 'turning the mirror round' and the ethical value that Plato recognises in artistic mimesis, also musical mimesis, see Halliwell 2005.

in these terms (601b2: *tōn tēs mousikēs chrōmatōn*), that is to affirm that it is the seductive charge of music that is dangerous, means to question not only a music bent to an unworthy mimeticism, but also music and its qualities *tout court*, because it can provide a valid contribution in order that the words of poetry assume an appearance of truth. And it is quite probable that Plato is aware that behind the power of music there were mechanisms that he condemns (Leszl 2004, 178).

In *Resp*. x, music seems in part to follow the fate of poetry. In 603c4–5 Socrates states that 'mimetic art represents human beings who carry out violent or voluntary actions'; as we recall, it concerns the same ethical content of the *harmoniai* accepted in 399a–c, but here the representation seems considerably less educative. With respect to violent or voluntary actions, the man finds himself to be well or badly off, and shows that he is suffering or feeling pleasure (603c5–7). In his soul there is not an unequivocal disposition, but a conflict between rationality and the less rational element of the soul (603c10–d7). Mimesis, by nature, will take as its object the soul in which such a conflict is resolved in favour of the irrational part (603e–605a).

So, the idea that mimesis, since it is the representation of individuals in violent or voluntary actions, must inevitably end up by being an expression of 'an irritable and variegated character' (*aganaktētikon te kai poikilon ēthos*, 605a5), rather than 'an intelligent and tranquil character' (*phronimon te kai hēsychion ēthos*, 604e2) is not a convincing conclusion. The treatment of verbal and musical mimesis in the third book shows precisely that next to a rich and varied mimesis, the expression of irrationality (604e1–2), there exists a mimesis (produced with verbal and simple musical means) that represents positive psychic and moral 'scenarios' (397d4–5). The Dorian and Phrygian *harmoniai* appear to be examples of how artistic mimesis can assume as objects the cases in which an interior conflict, in violent or voluntary conditions, resolves itself in favour of rationality.[98]

In *Resp*. 603e–605a, mimesis of the unequivocal character is considered difficult to carry out and to understand, above all for a public gathered in a theatre, in which such mimesis provokes foreign sentiments (604e3–6); conversely, the changing habit is *eumimēton* and its representation is popular with the crowd (605a4–6). The reference to the public and to theatre brings to mind the polemic that, in *Leg*. 700a–701b, Plato raises against the widespread habit of composing music according to the

[98] On the hypothesis that *aganaktētikon ēthos* is represented by the Lydian *harmonia* and the *hēsykios ēthos* by the Dorian and Phrygian *harmoniai*, see Wersinger 2002, 15–17.

changeable tastes of the masses. Spreading the lie that music does not have its own correctness and can easily be judged by the pleasure that it arouses in anyone, the poets caused a 'bad theatrocracy' to be established in the place of the ancient 'aristocracy' (701a2–3). The incapacity to follow other directives that are not the taste of the masses is underlined in a lively manner by the affirmation that the poets, like the Bacchantes, are moved by pleasure more than they should be (700d5–6). By means of the 'mawkish Muse' (*tēn hēdysmenēn Mousan*), there was established in the theatres a reign of pleasure and pain that in *Resp*. 607a5–8 Plato fears might implant itself in the entire State.[99]

The analysis of poetry and music developed in *Resp*. II–III is indeed aimed at avoiding a reign of the elementary sensations of pleasure and pain – a bad private *politeia* (605b7–8) – installing itself in the souls of children destined to become Guardians. The concessions to mimesis and attentive individuation of characters worthy of representation are dictated by the recognition of the psychological value of mimesis, through which the habits that constitute the nucleus of education settle.[100] In *Resp*. II–III the attention is concentrated on children, but I do not believe that Plato circumscribes the formative role of mimesis in general and that of music in particular to infancy. According to Nehamas (1999, 255–6, 270 n. 15), Plato ascribes an educative value to mimesis only in relation to children and conversely considers it dangerous since the soul is developed in all its components, including the rational ones. The term *porrō* in *Resp*. 395d2 does not indicate that the Guardians will engage in mimesis for many years, but that a mimesis of bad habits protracted over years can ruin even a good character. This, in part, explains the different perspective adopted in *Resp*. II–III and X: in the first books Plato takes on the problem of regulating the use of poetic mimesis for the formation of children, in the last book he engages in the question of the exclusion of poetic mimesis in the life of adults.

[99] An analogous criticism against the habit of considering music as a spectacle rather than a means of education can be found in ps.-Plut. *De mus*. 1140e–f: 'Whereas in our time the degeneration of music has advanced in such a manner that there is no longer the memory nor the comprehension of the style appropriate for education, but all those who are concerned with music turn to it for theatre.' As in the *Republic*, so in the *Laws* there are moments of conflict between philosophy and poetry: in 817a–e, the Athenian imagines answering the requests of the poets, sons of the languid Muse who want to introduce their own work into the State; he asks them to compare their work with the mimesis of the most beautiful and best life, the newly devised *politeia* (on the musical aspect of the organisation of the State, cf. 722d–723b, the prelude to law; on the Platonic use of *prooimion* and *nomos*, cf. Stella 1998). On a practical level, however, the answer is not the rejection of poetry in the name of law, but the research of a poetry that can bear the contents of the law: in a non-metaphorical sense choric dance is the best mimesis of the most beautiful life.

[100] Halliwell 2002, 73; cf. Arist. *Poet*. 1448b5–9.

But we may note that in the *Laws* Plato conceives of a use of artistic mimesis in adults too. The impression is that for Plato the development of a full rationality is not an acquisition that is tied only to age, but also and above all to a particular personal disposition that few people possess. *Mousikē*, with its formative and persuasive capacity, may be useless for philosophers (as shown in *Resp*. VII, see below, pp. 114–28), but can be employed with success to guide the majority of adults, intervening on sensibility. Then, as far as the *porrō* at *Resp*. 395d2 is concerned, indeed it does not seem to indicate that the mimesis stays with the Guardians for many years, but nor does it seem to be referring only to the case of the good souls ruined by bad mimesis. It seems to me that the term alludes to the importance of the factor of time in the mechanism with which mimesis, good or bad as it may be, is consolidated by habit.

Perhaps we can explain the educative power of mimesis with a process of 'identification' that intervenes to form or modify physical and mental attitudes (Brisson 1982, 92); but can we also describe the formative role of mimesis that is strictly musical in such a way? Perhaps the process of assimilation to a represented character, triggered by poetry as much as by music, assumes a different form in the case of verbal and musical content.[101] It is probable that the process of impression of the soul by the musical mimetic content does not pass through its individuation: the worry that Plato expresses in *Leg*. 669e about absolute music could derive from the very idea that the representative content of absolute music, even when it is hardly individualised, acts on the soul. Absolute music does not let itself be easily penetrated by rational instruments that are able to sidetrack its sensual power in order to then direct it towards the good. The mimetic content of the words is redoubled in unison with the music, but as soon as the representation is entrusted to a sonorous discourse a new form of intervention on the soul is introduced. Harmony and rhythm 'colour' words (above, pp. 62–3) and thus make possible an extremely effective action on the sensibility; but at the same time they expose the educative process to the risk of an intense solicitation of the senses and sensibility.[102]

In the *Timaeus* (47c–e), going beyond the *sensual* aspect of music is the result of an intelligent use of this art: whoever experiences music with intellect understands that the aim of the art is not to excite an irrational pleasure, but to bring order to the soul, through an affinity of movements.

[101] Else 1958, 85. On the process with which one identifies oneself with the emotive contents of music, cf. Madell (1996, 74) who refers to a 'genuine identification': identifying oneself with music signifies hearing the vicissitudes of music as one's own.

[102] Dorter 1978, 212, 220; Lovibond 1991, 51.

In this passage Plato seems to be referring to the pleasurable component only in order to deny that the utility of music consists in its capacity to cause an 'irrational pleasure'; but further on in the dialogue there is an interesting examination of the emotive reactions that music brings forth. In 80b5–8, we have the distinction between the two responses to musical stimuli: *hēdonē*, the reaction of those who do not understand the mechanisms of music, and *euphrosynē*, an emotive response from those, on the other hand, who recognise these dynamics and a mimesis of divine harmony in the movements of music. Again the theme of pleasure is connected to that of musical mimesis and now even more emphatically: the maximum aesthetic emotion actually springs from the understanding of the representative mechanisms of music. Once again, and even more strongly, the reference to an exclusively melodic mimesis of an ideal content appears; nevertheless, here such content does not consist in virtuous attitudes: the music of the *Timaeus* is the representation of an eternal harmony.[103]

Behind the psychological effect of music we find once again a notion of affinity, but here, unlike the passages in which Plato seems to adhere to the theory of *ēthos*, there is quite a precise description of how it occurs: the concept of movement is explicitly indicated. The influence of the Pythagorean reflections can be seen behind these considerations on the use of music to re-order the soul and the idea that music represents a celestial harmony.[104] Referring to the cathartic use of music, Iamblichus (*V.P.* XV, 65–6) attributes to Pythagoras the extraordinary capacity to perceive celestial music and to use it to re-order the mind. To his followers, incapable of perceiving this music, Pythagoras provides sorts of 'images', producing the mimesis of that music, by means of instruments or with the voice.

Making a comparison between the two passages in the *Timaeus*, it is not clear if the awareness that solicits the most profound aesthetic emotion is necessary to render rhythm and harmony efficient. In any case, the awareness of which Plato speaks at 47c–e seems to concern the finalities of music and not its representative mechanisms; moreover, the invitation, made at

[103] Anderson (1966, 105) advances the hypothesis that it is faith in the 'mimetic nature of Harmony' that gives Plato a margin of possibility on the existence of an *ēthos* of absolute music, despite the serious problems that this entails.

[104] On the Pythagorean character of *Tim.* 47c–e, see Boyancé 1936, 172–83; Harap 1938, 159, 161; Burkert 1972, 376 n. 30; West 1992, 31 and n. 90. On the existence of a Pythagorean theory of numerical mimesis, cf. *Metaph.* 987b11–12. This passage is cited by Else (1958, 86–7), denying that one can speak of a Pythagorean theory of numerical and numerical–musical mimesis, even though there is no doubt that the Pythagoreans recognise the affinity between numbers and reality, such as between music and the soul, this last being a conviction that is at the basis of the concept of mimesis proposed by Plato. Lasserre (1954, 82–3) points to a link between the Damonian theory of mimesis and Pythagorean doctrine of the affinity between music and the soul.

the end of the dialogue, to use music and gymnastics for psychophysical well-being seems to indicate that music can ensure the readjustment of anyone's soul. If it is thus, the hypothesis regarding absolute music in *Leg.* 669d–e is confirmed (above, pp. 59–61): instrumental music can act on the soul, even though there is no awareness of the representative content, and the kinetic process described here would be an explanation of the way in which such an action occurs. As Lippman notes (1964, 56), the music of the *Timaeus* is 'purely tonal art' and its fundamental value is in its capacity to reflect a *noetic* harmony.

The mechanism in *Tim.* 47c–e is based on the profoundly musical nature of the soul, as it is described in 35a–36d. But it is of extreme importance to note that it concerns only the rational soul and that the music of the *Timaeus* refers to this in a specific manner. Thus, this dialogue presents an action of music that is more immediate: music acts by petitioning the senses through its own structure and not a representative content foreign to it. Here the mimetic content of music is not a virtue, but the music itself in its ideal manifestation, the harmony of the universe (Lippman 1964, 90–2). However, at the same time, the *Timaeus* ascribes to music an intervention that directly involves reason. The analysis of the reflection on music in this dialogue introduces us to the theme of a musical cure of rationality.

CHAPTER 2

Moving to music: a therapy for the rational soul

We have seen that Plato places great faith in the power of music to shape and condition the *psychē* in its components that are most connected to sensibility; but he seems to place as much faith in the power of music to intervene on the rational *psychē*. In this second chapter I will concentrate on one of the two places in which Plato tackles the musical treatment of reason. I refer to *Tim*. 47c–e, the passage where music first makes its appearance in the *Timaeus*, a dialogue that dedicates particular attention to musical arguments, as we shall see. I mean to consider the intervention of music on the rational soul from the perspective of the ontological affinity between the two realities, as emerges here and in other parts of the *Timaeus*. Then I will examine the processes – kinetic, cognitive, emotive and perceptive – on which the re-ordering intervention of music on rationality is based. The second part of the chapter I intend to dedicate, in particular, to the impact of music on the intellective and emotive functions.

THE ALLIANCE OF MUSIC AND SOUL

The first reference to music to be found in the *Timaeus* appears in a reflection on the profound use of hearing (47c4–e2) and takes up a significant part of it (47c7–e2): we find ourselves unexpectedly facing one of the most interesting and complex observations on music expressed by Plato in the dialogues. In a passage that is dense with content we find themes such as: the 'therapeutic' use of music; the correct way to live the musical experience; the analogy between fundamental elements of music – rhythm and harmony – and the soul; the theme of music as a divine gift, a subject that we shall not go into here, but one that is of great significance in the Platonic consideration of music.[1]

[1] Cf. *Leg*. 653c–654a, 665a, 672d, 796e where music is linked to the figures of Apollo, Dionysus and the Muses; in 669c–d music is indicated as the Muses' art par excellence (on the connection between

The reflection on acoustic stimuli begins with the theme of speech (*logos*), but very soon Timaeus concentrates on music, placing the emphasis on the harmonic component, to which a large part of the passage is dedicated (47d2–7). Harmony, endowed with movements that are akin to the circles of the human soul, was a gift from the Muses for one who makes use of it with intelligence, not for an 'irrational pleasure', but to help put the soul back in order; similarly, rhythm helps restore measure and grace where these are lacking. At 47c–e music appears as an instrument of psychotherapy, according to a practice and conception that were prevalent in the Pythagorean circle. But the passage raises more than one question: about the nature of the intervention described; the role of the rational faculty and the other components of the soul, and the sphere of sensations; the significance that should be given to the term *mousikē*; and in general, the position that this passage should be accorded in Platonic reflection on the use of music.

We will start with a close reading of the extract, and then go on to trace the relationships with the main themes of the *Timaeus* and the other references to music in the dialogues. The observations on hearing are so closely linked to the previous ones on sight that Timaeus introduces the reflections on *phōnē*[2] and on *akoē* saying that his previous discourse holds for these too, as they have been gifted by the gods for the same reasons and with the same aims (47c4–6). The first aspect treated is that of speech (47c6–7), but despite the importance accorded to it, no other observations are made on the subject. From this point until the end of the treatment of hearing, the attention is drawn to music, which stands as an explanatory model for the deep usefulness of the acoustic sensations. In actual fact, the phenomenon that Timaeus chooses to illustrate the benefits that hearing can bring to man is not indicated in the term *mousikē*, but in an expression that is not easy to interpret: 'how much there is that is useful in the sound of music' (*hoson t'au mousikēs phōnēi chrēsimon*) (47c7–d1).

The first question concerns the connection that the phrase has with the preceding expression relative to speech: is it a principle phrase, coordinated

music and religion in the *Laws*, see Boyancé 1936, 226). In *Symp*. 197a–b Apollo is the inventor of the art of music and the Muses learnt it from him. On Apollo and the Muses, as musical divinities, see also *Crat*. 404e–406a. On Calliope and Urania, the Muses of philosophy and music, see *Phaedr*. 259d.

[2] Cornford (1937, 158 and n. 3) translates *phōnē* as 'sound' and means it as something that is opposed to *psophos*, that is as much an articulated speech as musical sound; similarly Barker (2000, 85) considers that here *phōnē* – sound – is not necessarily restricted to the field of the voice. The introduction of *phōnē* next to *akoē* almost makes the sliding that the discourse undergoes from the field of the perceptive faculty, hearing, to that of the object of that faculty, both treated as divine gifts, pass unobserved; such a sliding happens only apropos of hearing and its objects – *logos* and music – and not apropos of sight and the celestial cycles.

with the previous one, or does it in turn depend on the verb 'was established' (*tetaktai*) in 47c6? The first possibility seems preferable: to consider *hoson . . . dothen* the second subject of *tetaktai* means giving *pros . . . dothen* the value of a relative clause ('speech was established for . . . and also how much there is that is useful in the sound of music, that was given . . . was established to the same end'), a value that it does not seem to possess. The idea that music was prescribed with the same aims as speech seems to emerge in the continuation of the passage: the sense of the *au* that introduces the reference to music, i.e. the sense of the analogy between the finality of speech and of music, is not so much present in the first expression as in the description of the re-ordering task that harmony and rhythm carry out on the soul.[3]

The second question directly concerns the subject of the phrase, so it is of great relevance for our research: our grasp of the phenomenon treated by Plato in the succeeding lines depends on it. The emphasis is concentrated on the words that seem to identify a part of the complex reality indicated by the term *mousikē*: 'how much there is that is useful in the sound of music' (*hoson t'au mousikēs phōnēi chrēsimon*. We must reflect on whether *pros akoēn* does or does not make up a part of the description of the subject). The interpretation seems to depend largely on the grammatical and literal value attributed to the terms *phōnēi* and *pros akoēn* and their relation to *chrēsimon*. (1) We can consider *akoēn* to be the complement of *chrēsimon pros* and *phōnēi* the object of auditory perception: 'how much of music is useful in relation to the hearing of the sound' (reading *phōnēs* for *phōnēi*).[4] (2) Alternatively we may suppose *phōnēi* to be the complement of *chrēsimon*: 'how much of music is useful for sound in relation to hearing'. Moreover, the interpretation depends on the translation given to the term *phōnē*. Cornford and Barker's interpretations – hypotheses (1) and (2) respectively – and their relative translations do not seem to be based on a rigid interpretation of the term *phōnē*.[5] Cornford translates the term as

[3] The choice of the first possibility is also the most prevalent (Cornford 1937, 158; Richter 1961, 61; Rivaud 1963, 165; Bury 1966, 109; Barker 2000, 85–6; 2005, 124). Taylor (1928, 295–6), who explicitly treats the question, presents and supports the second hypothesis, translating: 'For speech has been appointed for this very purpose and contributes most of all to it, and again all vocal music, which has been given to us that we may listen to it with a view to the apprehension of melodic form, <serves this end>.' Cf. also the most recent translation by Zeyl 2000, 36: 'Speech (*logos*) was designed for this very purpose – it plays the greatest part in its achievement. And all such composition (*mousikē*) as lends itself to making audible musical sound (*phōnē*) is given in order to express harmony, and so serves this purpose as well.'

[4] See Cornford 1937, 158 n. 4; Zeyl 2000, 36 n. 48.

[5] Cornford 1937, 158: 'all that part of Music that is serviceable with respect to the hearing of sound'. Barker 2000: 'so much of *mousikē* as is adapted to sound in relation to the hearing' (p. 85), 'so much

'sound', but he evidently means it to include both sound produced by an instrument and by the human voice, if he maintains that the province identified by '*hoson t'au mousikēs phōnēi chrēsimon pros akoēn*' is that of vocal and instrumental music. Barker (2000, 86) accepts both the sense of sound and that of voice, specifying that the expression *hoson . . . akoēn* serves to identify perceptible music in the domain of *mousikē* understood as an expression of a mathematical order. This last interpretation has the great merit of evincing an aspect that is central to the passage, as I will endeavour to show: the relationship between the mathematical component and the sensible component of music. While agreeing with Barker's interpretation, I would suggest another one; it will not take into account the relationship between the perceptibility and rationality of music, but may bring to light another important link with subsequent observations in the passage.

Referring *chrēsimon* to *phōnēi*, it is also possible to translate *hoson t'au mousikēs phōnēi chrēsimon* as 'how much there is that is useful in the sound of music'. This highlights a theme that is relevant in the subsequent reflections on harmony: the reason for its great usefulness, stressing a direct connection between the *chrēsimon* at 47d1 and the *chrēsimos* at 47d4.[6] From 47d2 to 47d7 Plato then states that harmony can be useful to the soul and he criticises the reduction of this usefulness simply to pleasure: affirmations that should be considered precisely in relation to the introductory phrase that underlines the usefulness of this art. Hence, the expression *hoson . . . dothen* would not indicate so much a domain of *mousikē*, as the intelligible nucleus of which music is a carrier: a nucleus that gives the measure of the true usefulness of the sense of hearing and musical expression, at the same time.

of *mousikē* as is useful for voice in relation to hearing' (p. 86); 2007, 326 n. 24: 'that part of music which can be deployed by the voice and directed to the hearing'. Cf. also Richter 1961, 61: 'denn wievel von der Musik durch den Klang nützlich ist für das Gehör'; Rivaud 1963, 165: 'Et ce qui dans la musique est bon pour la voix et nous la fait entendre'; Taylor's interpretation (1928, 295–6) seems to come closest to hypothesis (2), in that it links *chrēsimon* to *phōnēi*, but is separate from it in the interpretation of *pros akoēn* that he considers to be part of the following expression; in any case, Taylor's translation of *hoson t'au mousikēs phōnēi chrēsimon* as 'all music which is of use to the voice' or 'all vocal music' does not strike me as correct, since there is no reason to maintain that Plato is only thinking of vocal music. Bury 1966, 109, who reads *chrēstikon* for *chrēsimon*, translates: 'music too, in so far as it uses audible sound'.

[6] Whether *pros akoēn* is to be considered part of the description ('as much as is useful in sound and music in relation to hearing') or a part of what follows ('. . . was given for hearing . . . ') does not change the substance of the interpretation, although I would tends towards the first possibility, considering that the value attributed here to sense-perception is better expressed. Taylor (1928, 296) connects *pros akoēn* to the second part of the phrase with an interpretation that does not, however, seem to be convincing, ascribing a final value to *pros akoēn* which seems to have only *heneka harmonias* in the text: 'all music which is of use to the voice (has been given) that we may listen to it'.

At 47c7–d1 this nucleus assumes the connotations of a harmonic content: what explains the gift of *mousikē* (in its true usefulness) to human perception is indicated by the expression *heneka harmonias* ('for the sake of *harmonia*'); and the main part of the reflections that follow is also dedicated to harmony. Thus, on the one hand we must understand what Plato here means by harmony, avoiding for the moment translating the term *harmonia* in the expression *heneka harmonias*. On the other hand, we must comprehend the reason for the significance that the notion of harmony has in the passage and the relationship with the final reflection on the rhythmic element.

Timaeus brings to light the kinetic structure of the reality identified by the term *harmonia*, a structure that is extraordinarily similar to that of the human soul (47d2–3: *he de harmonia, syngeneis echousa phoras tais en hēmin tēs psychēs periodois*). Such an affinity is at the basis of the help that harmony offers the *psychē* in order to recover lost equilibrium, indeed it is its fundamental function and the reason the Muses bestowed it on man (47d3–7). The significance placed on the kinetic aspect of the analysed musical phenomenon suggests that *harmonia* here means the melodic movement governed by precise and ordered numerical ratios: a mathematical structure, but entrusted to an expression of sound. Although the passage on music is directed at the harmonic aspect from the beginning, it closes with a reflection on rhythm: analogously, rhythm has the function of helping to correct a psychic condition of disequilibrium (47d7–e2). Despite the linguistic parallel – or indeed thanks to it – we can identify differences with the treatment of harmony. Regarding 'the soul's orbit in us that has become unharmonised' (*en hēmin anharmoston psychēs periodon*) at 47d5, the damage on which music works has changed as well as the nature of the reality on which it intervenes: 'our condition that lacks, for the most part, in measure and grace' (*tēn ametron en hēmin . . . hexin*) in 47d7–e1 seems to identify a more generic field of action, a psychic disposition.

In general, this reflection on rhythm appears less thorough than the previous one on *harmonia*: it seems limited to referring precisely to what was said before on the harmonic aspect. But, if on the one side the intervention of rhythm on the *psychē* seems comparable to that of *harmonia*, on the other we note the lack of a treatment of rhythm that reveals the ontological affinities between this musical reality and the structure of the *psychē*, hence the peculiarities of an intervention of rhythm on the soul. It would be apposite to ask ourselves if the absence of such a treatment should be interpreted as an indication of the absence of a precise reflection on the analogies and interactions between rhythm and *psychē*. Certainly,

the 'musicality' of the psychic structure consists in a harmonic succession of intervals (below, pp. 189–95) and it is not clear whether we can speak of a rhythm of the soul along with a harmony of the soul. Further on, I will briefly try to identify the signs of rhythmicity in the structure of the *psychē*, as the basis for an analogy with the rhythm of music.

To conclude this reflection on the musical object in 47c–e: my impression is that Plato is thinking of *mousikē* and its profound usefulness in the life of man and, nevertheless, concentrates above all on the harmonic component of the musical phenomenon. This explains why he dedicates so much space to harmony and why, at the same time, he also talks of rhythm, although rapidly and limiting himself to suggesting that it acts on the soul in an analogous way to the harmonic component. In consideration of this, when analysing 47c–e I tend generally to speak of a reflection on the phenomenon of music as a whole, making distinctions between harmony and rhythm only where it is particularly clear in the text and essential to comprehension.[7]

The singular terminology with which Timaeus expresses himself on music and soul in 47c–e – in particular, in the reference to movements and circles of the soul, and to an analogy with the movements of harmony – suggests a comparison with the complex exposition of psychogony. This comparison puts itself forward as a first obligatory step in an interpretation of the passage. The immortal principle of the human soul is modelled with the elements advanced by the creation of the cosmic soul (although endowed with an inferior level of purity) and through an analogous process (41d4–7); hence it carries those proportions and the harmony of movements that derive from a 'musical' nature. We will concentrate on the musical aspect of psychogony at a later stage, as on the analogies and differences between the creation of the World Soul and the immortal human soul. For now we will restrict ourselves to noting that we are encouraged to see the rational soul as a harmonic and musical structure, analogous to that of the cosmic soul, from passages such as 43d4–6: here the damage occasioned to the *psychē* by contact with a body is described as a perturbation of precise

[7] The relationship in this passage in the *Timaeus* between the two treatments, of harmony and rhythm, brings to mind the different treatment reserved for the harmonic component (hence it is a case of the *harmoniai*, above, pp. 35–50) and the rhythmic one used by Socrates and Glaucon in *Resp*. III, but also the frequency with which the pairing *harmonia–rhythmos* is used to define *mousikē* in the *Laws*. According to West (1992, 246), in the Pythagorean reflection on the psychological effects of music, the attention is probably turned as much towards harmony as to rhythm, since the numerical aspect is fundamental to both of them. In this respect too it is probable that there is a Pythagorean influence on musical therapy in the *Timaeus*: a therapy that is aimed at the curative role of harmony and rhythm, depending on the numerical component by which they are characterised.

numerical and musical relationships, identical to those that occur during the creation of the World Soul.[8]

The structure of the rational soul is made up of a complex system consisting of two orbits, furnished with circular movements: the Same and the Different. The Same – the outside circle with the role of command – proceeds in a uniform and constant manner towards the right; the Different is divided, according to precise intervals, into seven unequal circles that move in contrary directions to one another: three at a similar speed, the other four at different speeds, but always according to precise ratios (36c–d). The analogy of movements between harmony and soul, described at 47d2–3 seems to be at the basis of the action that harmony exercises over the soul: through the sense of hearing, harmony reaches the soul and imposes order on it, by virtue of an affinity that is not only a structural similarity, but also a relation of the origin, an ontological analogy.

In an effort to bring the discordant circle back to order and concordance, harmony is allied with the soul (47d6: *symmachos*). Timaeus' expression to describe the usefulness of music (47d4–7) displays traces of the structural proximity indicated at the start of the passage. He uses two terms with clear musical value (*symphōnia* and *anharmostos*) to describe both the ordered structure of the soul that music helps to restore, and the disorder into which the psychic circle has fallen. Thus, while in 47d2–3 it is harmony that is considered analogous to the *psychē*, here it is the 'musicality' of the soul that is recognised. In a similar way, rhythm is considered a help to correct the disposition lacking measure and grace that emerges in us. The beneficial action of musical rhythm can be linked to the rhythmicity originally present in the soul's constitution. Although no references to an affinity between music and the soul with regard to rhythm appear in 47d7–e2, perhaps we can read allusions to a rhythmicity of the soul in the description of psychogony. When Timaeus describes the complex organisation according to the direction and speed of the movements of the seven circles of the Different (36c–d), he makes a reference to the proportion that governs their motion (36d6–7: *en logōi de pheromenous*): this *logos*, in relation to the speed of movement, could well indicate a precise rhythm imparted to the course of the circles.

In the light of the musical origins of the soul, it seems that the key to reading the musical intervention in 47c–e is the concept of affinity, explicitly mentioned in relation to the movements of *psychē* and harmony, but certainly also extendible to the profound nature of music and the

[8] 35b–36b. Cf. Brisson 1974, 416; 1999, 150; Barker 2005, 122–3.

soul. The therapeutic action of music can thus be explained through the *contact* between substances that are akin (*syngeneis*). Now, the process with which music acts on reason, described in these terms, leads on the one hand, in quite a surprising manner, to musical intervention on *sensibility*, conducted through non-rational channels; while on the other hand it leads to the philosophical journey of ascent (or return) of the immortal soul towards an ideal dimension, a journey that is marked by an important involvement of *rationality*.

Apart from the fact (certainly not to be ignored in other respects) that *Tim*. 47c–e regards only the rational soul, the process described seems at the very least to be similar to that illustrated, for example, at *Resp*. 401d–402a (above, pp. 20–2): a process that occurs naturally, through contact of music with the psychic substance. The *euschēmosynē* that music brings to the soul in *Resp*. 401d8 can be compared to the *katakosmēsis* of *Tim*. 47d6 and, in both passages the effect on the *psychē* is explicitly related to the harmonic and rhythmic components of music. But, at the same time, the idea of a contact between like substances recalls the passages in which the soul, during its sojourn in the body, re-establishes contact with a dimension that is similar to it. In an excerpt from the sixth book of the *Republic* (490a8–b7), in an attempt to shine a light on the true figure of the philosopher, Socrates speaks of the tendency of proceeding untiringly towards the essence of reality. He describes the process as 'contact' (490b3: *hapsasthai*) with everything that *is* by that part of the soul which similar contact suits because it is 'akin' to it (490b4: *syngenei*); thus knowledge is described as a manner of drawing near and even forming a union with what *is*.[9] Analogous expressions appear in a passage of the *Phaedo* (79d1–7), in which a complete withdrawal of the soul into itself is contemplated: a process of drawing near to the pure, the eternal, the immortal, the invariable, to all that which it is natural for the soul to approach because it is 'akin' to it (79d3: *syngenēs*). Here too there is question of a contact (79d6: *ephaptomenē*) between like realities, a union made difficult by the presence

[9] In this passage there are descriptions of dynamics that recall as much the effect of music on sensibility as that on rationality. If the idea of contact brings to mind the contact of music with the soul in *Resp*. 401d7, the theme of the affinity between soul (or better, a faculty of the soul) and the reality with which it enters into relation recalls the reference to harmony in *Tim*. 47d. But we note the difference between the passive role of the soul in *Resp*. 401d–e, where the soul *is touched* by harmony and rhythm, and the active role that the soul assumes in 490a–b, making itself protagonist in the research of contact with a like reality. In 47c–e the emphasis is placed above all on the affinity between music and the soul, but the idea of a contact emerges in quite a clear manner in the description of acoustic perception (67a–c), where the stimuli of sound are understood to reach the soul, passing from a physical to a psychic dimension (below, pp. 155–71).

of the body, which is similar to the impure and therefore cannot enter into contact with the pure (67a–b).

The idea that the soul once again finds contact with like realities through perceptive stimuli recalls the passage in the *Phaedrus* in which Socrates describes the extraordinary effect of the meeting between the most acute of the senses, sight, and the Form of beauty, the only Form to have the privilege of being visible (250c8–e1). In the *Phaedrus* the attention is turned to the perceptive process of sight and to visual beauty, but the idea in the *Timaeus* that the rational soul enters into contact with an ideal structure through the acoustic stimulus of music seems assimilable to the process applied to sight described in the *Phaedrus*.[10] The expression that in *Phaedr*. 255c6–7 describes the passage of the visual stimuli from the sense organs to the soul (*dia tōn ommatōn . . . epi tēn psychēn*) can be likened to that in *Tim*. 67b2–3 which describes the journey of sound from the ears to the soul (*di'ōtōn . . . mechri psychēs*). As we shall see (below, pp. 160–1), our understanding of perceptive, cognitive and emotive mechanisms connected to music also depends on our understanding of the meaning of the preposition *dia* and the processes of interpretation and elaboration from corporeal to psychic.

So, the direct and incisive action of music on the *psychē* in *Tim*. 47c–e invites a comparison as much with the intervention of perceptive musical stimuli on sensibility, as with the entirely intellective meeting between soul and ideal world, and this leads us to understand the difficulty of putting that action into perspective. The concepts of affinity and contact, to which I have given the most prominence so far, present musical influence on rationality as the fruit of the interaction between two harmonic structures, connected by the sharing of an essential aspect: a proportioned system made up of movements. However correct under diverse points of view, such a reading does not satisfy the need to understand the role that the senses play in the intervention of music on reason; nor does it fully explain the active role of rationality itself, in the passage from a sensible to a cognitive reception of music. The contact of music with the rational soul is perhaps the strongest message that *Tim*. 47c–e offers to anyone attempting to understand this therapeutic use of sound; but it is necessary to follow other cues to comprehend how played music exercises such a beneficial action on the 'mathematical music' that is the soul. To content ourselves

[10] Cf. Iambl. *De myst*. III, 9 that actually seems to condense the doctrines found in the *Phaedrus* and the *Timaeus* in the description of a process of acoustic recollection: prior to embodiment the soul heard divine harmony; once joined to a body, when it hears those melodies that best preserve traces of the divine harmony, the soul recalls it and undertakes an approach to that reality.

with an explanation of the musical–soul interaction in *Tim.* 47c–e in terms of affinity means losing the opportunity of tackling the notable points and crucial difficulties that the passage raises around the mind–body question. So we will not restrict ourselves to considering, from a mentalistic perspective, the interaction between music and soul as a dialogue between similar incorporeal entities, a question of 'ghosts in the machine'.

If there is no doubt that an understanding of the value attributed to music in *Tim.* 47c–e passes through an evaluation of the musical origins of the rational human soul, it is equally certain that a consideration of the damage that music endeavours to remedy cannot be excluded. Other than the description of a soul that is an amalgam of musical relationships, the image that *Tim.* 47c–e evokes is the much less harmonious scenario of incarnation and relative lack of balance. The disharmony of movements, the accident of a soul losing its original structure, is a condition that the *psychē* experiences for the first time when it is embodied: to understand the nature of the difficulties that music tries to obviate, we must take a look at the description of the assembly of soul and body in a human being.

The passage of the *Timaeus* (42e–44b) in which the creation of a living mortal is described shows the unhappy consequences to which the delicate structure of the rational soul is subjected when it joins the body. The dramatic event of incarnation is an operation of liaison between the 'orbits of the immortal soul' and the body exposed to influxes and effluxes (43a4–6). In kinetic terms, it is the meeting between substances endowed with different movements: the soul, made up of circles that proceed exclusively according to a circular motion and the body, having six movements.[11] Immersed in a sensible dimension, the movements of the soul must deal as much with the corporeal movements, as with the sensations, that is with the movements of the 'affections' (*pathēmata*), transmitted to the soul through the body (43b5–c7). The movement and the function of command of the Same circle are perturbed by the contrary motion of the sensations (43d2–3); while the Different is upset in the system of proportions of its seven movements: the numerical ratios that are at its basis are not destroyed, but in some way the possibility of their translating themselves into a harmony of movements is rendered inactive (43d3–e4). Where the proportion is the distinctive feature of the genesis of the soul and of its existence, the loss of proportion (43e3: *alogōs*) in some movements of its structures is one and the same as a dramatic loss of its own nature. The embodied soul, reduced to moving itself without respecting time or trajectories, is the expression of

[11] 43a6–b5. See Pradeau 2008, 75 and n. 1; Johansen 2000.

the complete overturning of the order according to which it was created. Hence the image of a man with his head upside down (43e4–8), used to describe the perturbation of the circles of the Different, can easily be taken as a symbol of the deformations to which the balanced structure of the soul as a whole is subject.

A question arises from a reading of this passage as to the reason for which Plato, describing the re-harmonising action of harmony in 47d5, makes a reference to only one circle of the soul, when the perturbation caused by the body and described at 42e–44b clearly involves both circles. Is the use of the singular dictated by the fact that Plato is thinking of one particular circle? And if so, which circle? The importance attributed to the Same circle, characterised by a hegemonic role in the equilibrium of the psychic structure, leads us to think that 47d refers to this very circle: in 42b–d the restoration of the command by the Same (hence the resolution of the problem caused to the Same by incarnation, cf. 43d2–3) is indicated as an essential condition to escape from the cycle of reincarnation (true catharsis for the soul). But it does not seem to me that there are conditions that allow us to take the reflection further in this respect and come to a definite conclusion on the question.

Now, if it is true that the terrible psychic disorder of 42e–44b occurs only in the first moment in which the soul is immersed in a body (44b1),[12] it is also true that the search for a harmony between soul and body and within these two entities is destined to last for the whole of existence.[13] The cure of reason is part of a more complex therapy, inspired by the awareness that to ensure the rational embodied soul has the order that permits it to best perform its functions, it is necessary to cure the mortal, physical and psychic components of the individual; to take care of the individual in its psychosomatic complexity.[14] In the *Timaeus*, music is not a remedy for treating emotive states accidentally perturbed in the course of life, but a therapy that acts on a condition that is characteristic of a human life from birth (Barker 2005, 126). We briefly note that such an observation provides a further point for reflection on the question already raised of the relationship between the impromptu intervention of music on an emotive

[12] Cornford (1937, 149 n. 3) correctly underlines that *Tim*. 42e–44b describes the condition of rationality in an individual just born and not in an adult who is prey to passions. We must keep this aspect in mind, in an analysis of the intervention of music in 47c–e, an intervention that is not limited to childhood either. Despite problematic aspects, which we will go into below, the intervention seems to belong in the educative project that should support and assist the natural restoration of the soul after the initial violent infantile disequilibrium (cf. 44b1–7).

[13] Brisson 1974, 430; Pradeau 2008, 77–8.

[14] Johansen 2000, 107–8; Carone 2007, 102–6.

state and the permanent influence on the character, on the structure of the *psychē* and on a collection of psychic responses.

In the passage on incarnation just mentioned, we can perhaps make out a reference to the contribution of music in the search for equilibrium in a mortal being. Having explained that, with the passing of time, the physical interferences diminish and the soul in part recovers its order and cognitive faculties (44b1–7), Timaeus places the accent on the important contribution of education to escape the worst illness (*megistē nosos*) (44b8–c4). This psychic illness is unreasonableness (*anoia*), contracted at birth and never definitively wiped out. Timaeus goes into this once again at the end of the dialogue (86b–87a),[15] considering the responsibility that contact with the body has, but reaffirming the importance of *paideia* (86d7–e3, 87a7–b9) and indicating the educative remedy in music to lead the soul back to its original movements (88c3–6).

At the end of the *Timaeus*, music appears next to gymnastics in the classical educative pairing, to which Plato gives a physiological and kinetic justification in this dialogue. Music and gymnastics are useful because they provide the appropriate movements for the soul and the body: the proportionate use of these two activities contributes to bring equilibrium, not only to the body and the soul taken singularly, but in the relationship between soul and body. As in the *Republic*, it is a question of performing a skilful administration of music and gymnastics to ensure a harmonious development of the individual, but in the *Republic* – as we remember – the attention is entirely focused on the psychic element. There Plato explicitly rejects the idea that music cures the soul and gymnastics the body, since he considers both activities necessary for a balanced development of the functions of the *psychē*. In the *Timaeus*, the idea that it is the rational soul itself that has within it a problematic complexity seems to tone down the terms of the contrast with the body. Although it is not easy reconciling the use of music at 47c–e and the traditional educative use of music and gymnastics at 88c3–6 within the same framework; it is undoubted that the musical intervention on rationality, described at the start of the dialogue, should be evaluated in relation to the search for a psychophysical equilibrium, for a well-being in soul and body together (Gill 2000, 68).

At the beginning of the *Timaeus*, Plato's ever lively attention towards the benefits that music has for human life is concentrated on the event marking

[15] In 88b5 the worst illness is ignorance, but in 86b2–4 it is considered, along with madness, a type of unreasonableness (*anoia*) on which the bad health of the soul depends; in the description of incarnation the accent is placed on the loss of reason, on the part of the circles of the soul and the whole *psychē* (44a3: *anoētoi*, 44a8: *anous*, 44c3: *anoētos*).

the beginning of that life, the consequences of which have repercussions over the entire existence: the joining of the soul to the body. He evokes the disorientation of the soul on contact with the body, but also suggests a profitable use of the corporeal dimension. The therapeutic use of music in 47c–e shows that the recuperation of its own structure by part of the soul is decided in the soul–body relationship itself. Certainly, when we speak of the recuperation of an original structure, we must bear in mind the fact that the soul which makes use of music to restore order within itself is an embodied soul and the harmony that it tries to create inside itself is not the original harmony, created and maintained outside (and before) a corporeal dimension, but the new harmony of a soul that is immersed in a body. The *psychē* must restore and maintain its own structure in a corporeal dimension and it can only do this through an intelligent use of sensibility. Making intelligent use of music, in order to remedy the internal disorder, means introducing an advantageous relationship with the very sensations that were the cause of the disorder. In this sense, the location of the reference to music is emblematic: it appears after the dramatic description of the damage that the body inflicts on the soul, but in a reflection on the advantages that the soul can draw from the body. The observations on the benefits occasioned to the soul by music are a part of the reflection on the true purposes of sight and hearing (46c–47e).

Sight serves to observe the circles (*periodous*) of the celestial intellect and use them for the revolutions (*periphoras*) of the intellect that is within us: these latter are movements akin (*syngeneis*) to the celestial movements, but subject to disorder, whereas the celestial movements are imperturbable. Participating in the correctness of reasoning and reproducing (*mimoumenoi*) the absolutely regular movements of the god, we can correct our own errant movements.[16] There are interesting and varied affinities between the observations on the value of sight and that on the usefulness of hearing:

[16] 47b5–c4. The use of the participle *peplanēmenas* (47c3–4) to indicate the irregular movement of the psychic circles, in a context in which the movements of the planets are discussed, seems provocative and recalls those passages in the *Laws* (821b5–9, 822a4–b1) in which Plato argues about the term *planēta* that might allude to the irregularity of movements of the planets, movements that on the contrary have the greatest regularity. In *Tim.* 47b–c Plato seems to indicate what really merits the attribute 'errant': perturbed psychic movement and not imperturbable and regular celestial movement. In *Tim.* 38c5–6 the adjective 'errant' recurs with reference to the five stars excluding the sun and moon, but in a context in which the regular character of their movement is clear: their progress is so systematic that they contribute to the distinction and the conservation of numbers of time. This last observation relative to time might furnish us with a further point from which to enlarge the reflection on the rhymicity of the soul. Re-ordering its own movements through the observation of astral movements (which, as we shall see, are no other than the movements of the Different circle of the cosmic soul), the soul begins once more to move according to an ordered rhythmic sequence. In 39c–d Timaeus notes that men do not know the cycles of the celestial

the divine nature of the gift of these senses (for sight 47b6, for hearing 47c5–6, d6–7, e2); the 'utilitarian' use of these senses for the good of the soul (47b7: *chrēsaimetha*, 47d1: *chrēsimon*); the affinity between the movements of reality perceived through sight/hearing and the movements of the soul (47b8: *syngeneis*, 47d2: *syngeneis*); the ordering effect of the correct use of visual and acoustic stimuli (47c3–4, 47d5–6, d7–e1). In particular, there seems to be a profound correlation between the contemplation of the stars and listening to music: these are operations of high therapeutic potential for the rational soul, structurally similar both to the order of the heavens and the proportion of music. After all, the order of the heavens is at the same time musical harmony, since planetary movements are nothing else if not the rotations of the circles of the cosmic soul (38c3–d6; below, p. 193). At the close of the dialogue (90c6–d7), both aspects of the therapeutic observation of the heavens – astronomical and musical – emerge. Confirming the basic affinity between movements in the divine part of man and movements of the universe, Plato suggests that it is possible to correct the revolutions that are deviant from birth through learning about harmonies and the circular movements of the universe.

At this point, without going into detail, I would like to propose a comparison between the astronomical–musical care of the rational soul at *Tim*. 47a–e and the study of the stars and harmony for the development of rationality at *Resp*. 527d–531c. As we shall see in the next chapter, in *Resp*. VII – in a passage that, like *Tim*. 47a–e, relates the study of astronomy and harmony to the purposes of the best senses, sight and hearing (*Resp*. 530d6–7) – there clearly emerges the difficulty of assigning a place to the sensible dimension in the study of the two disciplines for the development of rationality. The reflection in the *Timaeus* on the importance of the celestial and harmonic movements for the care of the rational soul does not reveal the decided tension towards the intelligible to be found in *Resp*. VII. And yet, as I will endeavour to show, the question of the role to be attributed to the body and to sensible perception in astronomical and musical experiences in the *Timaeus* is problematic, even if (or perhaps, all the more because) it runs through the whole dialogue without ever clearly emerging. We note in the concluding discourse on the therapeutic value of the contemplation of a celestial harmony that every reference to sensibility

bodies, beyond those of the sun and moon, nor do they know that time in part depends on these movements, which are extraordinary in both number and variety; these movements mark the 'perfect number of time', when they complete their journey at the same time. In the reflection that Timaeus presents here, we can perhaps discern the idea of a perfect rhythmic system, strangely absent in the contemporary theories of both astronomy and music.

disappears: in the place of the *opsis* and the *akoē* there is only the mental act of *katamanthanein* to be found (90d3).

In *Resp*. VII, going beyond the phenomenal component in the study of astronomy and music is considered necessary in order to reach the more profound and useful content of the science of the stars and harmony. It is only this content that can provoke the desired maturity in rationality: the correct study of astronomy and harmonic science is directed at reaching the concept of harmony of movements that is the nucleus on which the link between the two disciplines is founded. It is interesting to note that in the *Timaeus* too, Plato affirms the need to attain the ideal content of astronomical observation and listening to music: a supersensible notion of harmony. What is presented in the *Republic* as a primary exigency, without which every effort towards celestial and musical things would be in vain, in the *Timaeus* takes the form of an invitation to observe the stars and listen to music in the most profitable manner. But drawing a parallel between the two dialogues apropos of this aspect brings out a fundamental difference: the *Timaeus*, unlike *Resp*. VII, does not refer to the *study* of astronomy and harmony. It is not obvious to interpret the astral and musical care proposed in the *Timaeus* as the outcome of a correct application of the astronomical and musical sciences, and indeed there are reasons to ask oneself if in the *Timaeus* Plato is actually thinking that contact with the ideal content of music and astronomy comes about in a conscious manner. Without a doubt the word 'understanding' (*katamanthanein*) in the expression 'through the understanding of the harmonies and revolutions of the cosmos' in 90d3–4 suggests the idea of study, but it does not seem to me that it dissipates every uncertainty on the subject. Now, if a reference to the discovery of the ideal content of music and astronomy is at least conceivable when talking about the scientific study of such disciplines (as in *Resp*. VII), it is not conceivable when it is a question of a non-scientific observation of the stars and a non-professional listening to music. Put in other words: in the *Timaeus*, the level of awareness with which reason, through observation of the heavens and listening to music, enters into contact with a universal order, similar to its own structure, is not clear. As far as music is concerned, an interrogation on such an aspect is none other than an effort to reconstruct the process – perceptive and intellective – through which the contact between things that are akin occurs, i.e. that contact which in the *Timaeus* is the musical experience of the rational soul.

The transition from the description of embodiment to the long reflection on the secondary causes (the mechanisms) and primary causes (the purposes of the major sense organs, sight and hearing 46c–47e) happens by way of

a consideration of the logic with which the soul is located in a sentient body (44d–45b). In the intentions of the gods holding the responsibility for creating mortal beings, the corporeal component of man is structured in such a way as to favour, or at least not excessively perturb, cerebral activity. There is a corporeal structure with a spherical form, in a privileged location that receives the 'divine circles' (*theias periodous*): the head, with which the rest of the body, possessing every type of movement, has a rapport of servitude (44d3–8). As we know, such an organisation does not guarantee to the soul the conservation of its own structure, movements and capacities. Perhaps it might have guaranteed this to a structure that was not susceptible to a lack of balance, a compact and unitary *psychē*, but it could not guarantee it to the immortal human soul – a structure whose equilibrium is as complex as it is precarious – that has the potential to lose its own rational order (below, pp. 194–5).

Despite the efforts of the creators, not much remains of the original ordered proceeding of the psychic circles. At first strong disorientation seems inevitable, and the care of placing the soul in the right place serves perhaps more to permit it to find itself again during its earthly existence than to save it from bewilderment at birth. The intention of providing the soul with instruments with which to find itself clearly emerges at the end of the passage, where we learn that the creating gods place, at the front of the head, the 'organs for every foresight of the soul', most of all the eyes.[17] We must relate this passage to the attention later reserved for visual and acoustic sensations: the assessment of the power of sight and hearing to introduce the *psychē* into the contemplation of cosmic harmony certainly falls into the category of a project of 'foresight of the soul' (Cornford 1937, 151–2).

It will not be surprising to run into an evaluation of the benefits that sight and hearing bring to the soul after a consideration of the damage caused by the sensations, if we consider that even in a dialogue such as the *Phaedo*, permeated by an extreme awareness of the damage that sensibility causes the *psychē*, there is room for a nod to the role that the two major senses play in the process of bringing the soul closer to its own dimension. It is a question of recollection, a process also described in terms of contact with the similar, as we have seen. In the *Phaedo* we find affirmations of the doubt about the possibility that sight and hearing possess some truth (65b1–7), invocations for the soul of a liberation from the eyes and ears

[17] 45a6–b4. Cf. *Leg.* 961d7–10, where sight and hearing, the 'most beautiful' senses are indicated as the 'saving of everybody', along with the intellect.

(66a3–4, 79c–d) and even the idea that sight and hearing are a hindrance (65c6) in the search by the soul for the true essence, going along with the basic idea of the dialogue according to which the soul attains truth when it manages to ward off all sensations. But, at the same time, in this dialogue the idea is posited that, in the sensible dimension, it can only be the perceptions that recall the 'memory' of immutable realities, known before birth: the perceptive experience is the point of departure of the cognitive process that is in reality a remembering (75a5–b2, e2–7, 76a1–7).

The idea that, through the senses, the recuperation of content that originally belonged to the soul occurs – the recuperation of 'one's own knowledge' (*Phaed.* 75e5: *oikeia epistēmē*) – seems to me to be comparable to the idea in the *Timaeus* according to which, through the acoustic solicitations of music (or the visual solicitations of astral movements), the soul regains something that belongs intimately to it: its original equilibrium (also translatable, as we shall later see, into cognitive and epistemological functions). In the *Timaeus*, at least before the creation of the mortal components of the soul is introduced, we encounter a question similar to that in the *Phaedo*, (in which for *psychē* only the rational soul is meant): the meeting and difficult cohabitation between foreign substances. In both dialogues there is the idea that the contact with sensibility determines an impoverishment of the intellective capacity, although, in a very significant manner, the *Phaedo* talks of a 'foolishness of the body' (67a7: *tēs tou sōmatos aphrosynēs*) and the *Timaeus* of an 'unreasonableness of the (rational) soul' (44a8: *anous psychē gignetai*). Despite the efficacy with which the *Phaedo* describes the ruinous effects of the union of the soul and body, the event of embodiment seems to assume even more alarming traits in the *Timaeus*, presented as it is as a happening that may cause damage within the rational soul itself. Becoming the soul of a body, the *psychē* in the *Timaeus* undergoes damage to its structure – the breaking of the internal equilibrium – such that the harm, caused by the sensible dimension, has now become a part of the soul and cannot be eliminated by the soul withdrawing into itself. Once the embodiment has taken place, it is not the movements of the body, but the movements of the soul itself, deprived of their proportionality, that compromise the life of the *psychē* and impede a regular carrying out of cognitive activity.

The kinetic aspect of the soul plays an important role in the *Timaeus*, in particular with respect to its interaction with the corporeal dimension. In the *Phaedo* there is the idea that calm is necessary for the soul to perform its deepest intellectual acts. The notion that the cerebral movements represent difficulty for the soul when it carries out its cognitive functions – an idea

that appears in a passage of *Morb. sacr.* XIV, 5 and in Alcmeon 24 A5 DK – perhaps leaves a trace in *Phaed.* 96b4–8 (see Di Benedetto 1966, 340 n. 50). However, in the *Timaeus* the calm of the soul is the regular proceeding of the circles, as we note for example in 44b2–7, where, significantly, the term *galēnē* is used, which usually indicates the calm of the sea, i.e. something that moves in any case. To analyse the contact of the soul with its similar in the *Timaeus*, an event that is also presented in the form of a musical experience, means, on the one hand, reflecting on the strong interconnection (instead of the opposition found in the *Phaedo*) with which the mind–body relationship is assessed. On the other hand, it means considering a vulnerable psychic substance that is not integral and is represented by a spatial kinetic structure.

Even from a superficial reading, the figurative vigour does not pass unnoticed nor, what we might call, the plasticity with which the psychic structure is presented in the *Timaeus*: the conception of psychic movements in spatial terms is presented as much by psychogony as by the description of embodiment.[18] This consideration, highly relevant in absolute terms in the field of Platonic psychology, is also of great interest when one comes to analyse the interaction, described in the dialogue, between music, a physical phenomenon, and the soul, a non-physical substance. But simply defining music as physical and the *psychē* as non-physical might mean betraying the arguments of the *Timaeus*.

Doubts have been raised as to the immateriality of the soul in the *Timaeus*, considering the fact that both the indivisible being that is always identical and the divisible being that becomes in bodies make up a part of the composition of the World Soul (35a1–4; see Miller 1999, 182–3). In any case, the fact that in the *Timaeus* Plato conceives of a soul endowed with spatial movements excludes the possibility of considering the spatial extension as a discriminating factor between soul and body: the differences between these two entities cannot be described in Cartesian terms. As has been noted, the theme of a *psychē* furnished with its own dimensional consistency is closely connected to a particular reflection in the *Timaeus* on the mind–body relationship.[19] We can add that this also represents an indispensable aspect in the evaluation of the intervention of music on the soul. After all, 47c–e is not a description of the equilibrium that music

[18] Cf. Sedley 1997, 330; Johansen 2000, 90–1; Sorabji 2000, 116, 224; Carone 2005b, 235–9. Lisi (2007, 113) underlines the difference that exists, in Platonic reflection, between psychic and corporeal movement, the first occupying 'an intermediate position between the immobility and stability of the Forms and the translation movement of tri-dimensional objects'.

[19] Johansen 2000, 91–3; Carone 2005b, 235–42.

instils in metaphorical terms, but a presentation in a literal sense of the interaction between two realities endowed with similar movements.

The spatiality of the soul is unmistakably present in the description of the soul's location in the body, thus linking itself to the other aspect raised above, the mind–body interaction just as it appears in the *Timaeus*. The theme of spatiality already emerges in a notably figurative sense in the context of the cosmic soul. Timaeus recounts how the demiurge has united it to the world's body in the centre and spread it in every direction, to the extremity of the sky in order to completely cover the cosmos. As has been noted (Frede 1996, 36–7), the emphasis on the extension of the cosmic soul is a reason to believe that the description of the psychic structure consisting of circles is not metaphorical. As regards man's *psychē*, the description of the genesis of the mortal soul proceeds at the same pace as an illustration of the areas of the body where the gods knowingly decide to place it and the spatial position of the soul in its three species occurs in strict relation to the behaviour of each psychic element (69c–70e). The gods build inside the body 'another form of soul, the mortal form, that has terrible and inevitable affections within it' and, once again turning attention to the safeguarding of the rational soul, they place the mortal soul at a proper distance from it, in the chest, so that the neck separates the two. Nonetheless, having distinguished a best element (spirited) and a worst element (appetitive) in the mortal soul, the gods arrange a further positioning and division: the *epithymētikon* ends up in the lower part of the thorax, between the midriff and the navel, separated from the *thymoeidēs* by the midriff. The nature and function of the elements of the soul dictate their positioning in the body: the spirited element which is able to form an alliance with and support reason is placed nearer the head (70a2–7), while the appetitive element, sensitive to requests for nutrition and generation, and incapable of reasoning, is to be found as far as possible from the head so that it causes the least possible disturbance to the intellectual activity of the rational soul, but in such a position that its own needs be satisfied, as far as is necessary for the perpetuation of the human species (70d7–71a3). Hence, the ontological and moral hierarchy between the elements of the soul is projected within the body space, which presents itself as a physical system conceived to take in a complex psychic structure.[20]

[20] Cf. Vegetti 1985, 213, who speaks of a 'somatizzazione' of the soul and of a 'psicologizzazione' of the body. For mention in the *Phaedo* of the vision of the soul diffused in the body, cf. Robinson 1970, 30–1, who notes passages in which a 'spatialist language' can be found and the soul is conceived, in physical terms, as a 'vital fluid' that pervades the entire body. On the close interdependence between soul and body in the *Timaeus*, outlining a vision of the mind–body problem that is distinct from

It is interesting to note that, in the design of creation, the mind–body interaction includes the conception of a psychic purpose for the corporeal organs: the heart, positioned in the chest, can immediately signal anger rising in the spirited soul, and, by virtue of its own motility, it can quickly communicate the placating message of reason to all sensible parts of the body (70a7–c1). The lungs have the task of 'cooling' the heart and ensuring that it is able to serve reason (70c1–d6). The liver enables reason's messages, in the form of images, to reach the element of the soul incapable of reasoning, the appetitive element (71a3–d4). In addition, in 72e3–73a8, the constitution of the belly, receptacle for drink, food and the intestines, serves to ensure that humankind can dedicate itself to the requirements of the rational soul, without continually perceiving nutritional needs and therefore becoming 'un-philosophical and un-musical' (*aphilosophos kai amouson*). The strict interaction between soul and body also emerges from the consideration that the contrast between the nutriment and the revolutions of the rational soul produce physical effects. At 76a6–b1 Timaeus states that the form and quantity of cranial sutures depends on the type of impact that occurs between the nutriment and the rotations of the soul. An analogous issue of the physical effects that psychic activity produces is to be found in 91e2–92a2 where, describing the birth of land animals as the degeneration of men who neglect intellectual activity, Plato explains the non-erect posture as a result of the predominance of souls located in the thorax and the varied shapes of head as the outcome of the compression of the rotations of the rational soul imposed by inactivity.

Furthermore, in the *Timaeus* the idea is posited that within the human body there exists a place and a physical substance in which the mind–body connection comes to life: the marrow.[21] A kind of forefather of the Cartesian pineal gland, once the expression and possible solution to the problems raised in the mind–body relationship, the marrow is made up of a mixture combined according to the proportions of the triangles that are able to produce fire, water, air and earth, in the best possible manner. The elements of the soul are 'implanted' in and 'bound fast' to the marrow, hence it is divided into as many sections as there are elements: the part

dualism, cf. Carone 2007, 109, 114. For an interpretation that provides interesting insights into the relation between soul and body in the *Timaeus*, within the framework of a dualistic reading of the mind–body question in the dialogue, see Fronterotta (2007a, 93, 94, 97, 105) who suggests that the mortal soul should be understood as 'la reazione psicofisiologica che si ingenera nel corpo e investe l'anima immortale', when the immortal soul enters into a body. For Pradeau (2008, 59), on *Tim.* 69–70, it is not the body that is built with a view to the soul, but the contrary: it is the mortal parts of the soul that are designed to govern a body subject to movements that are not circulatory.

[21] 73b1–e1. See Solmsen 1968, 515–26; Pradeau 2008, 67–73.

destined to receive the rational soul is modelled in the form of a brain, while that made to receive the mortal soul is fashioned in round and elongated shapes, together called the 'marrow', that constitute sorts of anchors from which the 'bonds of the soul' are cast. The close interconnection between the physical level and the psychic, which is present in the *Timaeus*, emerges with strong emphasis from the expressions used in this passage. Other than the relationships that come to light in a rapid reading of the passage, we imagine a relationship between the valuable constitution of the marrow and the reception that such a substance offers the soul: the marrow must be able to bind and contain the delicate movements of the *psychē* (Miller 1999, 181). And, perhaps, in the reference to the proportionality with which the elements chosen to form the marrow are mixed (73c1: *meignys de allēlois symmetra*) we can see a further motive of relationship with the structure of the rational soul born and governed by proportion.

Such a deep consideration of the mind–body interaction is corresponded by a therapy centred on the value of appropriate movements (90c6–7: *therapeia de dē panti pantos mia, tas oikeias hekastōi trophas kai kinēseis apodidonai*), predicated in relation as much to the physical dimension, as to the psychic, and above all the psychophysical. A passage at the end of the dialogue (89e3–90a2) alludes to the presence of specific movements in every component of the soul – immortal and mortal – and the need to maintain a correct proportion among these movements, providing all three elements, in the right measure, with the right kinetic stimuli. The idea that the exercise of appropriate movements produces strength, that inactivity produces weakness and that such a principle should be considered in the cure offered to the single parts is also present in the close examination of the balanced relationship between soul and body (87c–88c). But what is striking here, in relation to a purely psychic dimension, is the use of an expression such as *en gymnasiois* that usually indicates physical exercise (cf. *Resp*. 498b7–8, when speaking of the necessity to intensify the exercises – *gymnasia* – of the soul). The passage is introduced by the consideration that whomever assumes the role of guide must be prepared first and in the best manner, and is followed by a reflection on the element of the soul that has the role of command, reaching the invitation to cure it through the contemplation of harmonies and celestial movements (above, pp. 80–2). It is reasonable to suppose that the relationship between the movements of the three elements of the soul should mirror the hierarchy that sees the predominance of the rational soul (Brisson 1974, 431). Thus, the attention placed on the whole dialogue to define the sensible (visual and acoustic) stimuli that can direct the rational soul towards correct

movement is perfectly understandable. In particular, it is comprehensible because Plato shows an interest in the effects of music on the balance of the rational soul, but it is important to ask if there is an involvement on the part of the mortal *psychē*.

At 47c–e there is reference only to the rational soul: after all, the creation of a mortal soul has not yet been illustrated. But the process through which music manages to touch and influence reason seems to bear an involvement of sensibility, as I use the term in chapter one. This fact emerges in 67a–c, a passage in which acoustic perception, in line with the strong interconnection between *psychē* and body that we find in the dialogue, is understood as a journey of sound from the body to the soul, touching the locations of the mortal and immortal soul (below, pp. 155–71).[22] Nonetheless, it seems that the true beneficiary of musical intervention contemplated in the *Timaeus* is the rational soul. Even in the final call for music to be used to move the soul in the appropriate manner, the attention seems to be concentrated on the rational element. This invitation is located in a general reflection on the balance of the soul in relation to the body and just before the statement that the three components of the soul have specific movements. It is true that in 87e–88a, assessing the damage that a psychic imbalance can cause the body, Plato seems to distinguish between excesses traceable to different elements of the soul: animosity (87e6–88a1), intense research and study (88a2–3) and desire for victory (88a3–7); but the music that should act as remedy to such damage – music significantly placed alongside philosophy (88c5) – seems to be directed at rationality, presenting itself as an intellectual correlate to physical exercise for the body (88c1–3).

MUSIC FOR THINKING

Musical gymnastics for the soul are aimed at re-invigorating the circles of the *psychē*, restoring the organ that is the rational soul to its proper function. To lead the soul back to an order analogous to its original one means giving it back the faculty that characterises it: the intellectual faculty. The loss of balance as a result of embodiment, until now considered above all under a structural profile, does indeed translate, in functional terms, into a loss of intellectual capacity. In *Tim.* 36e5–37a1 the soul is defined as 'having part in reasoning and harmony', with an interesting reference to

[22] For an analysis that gives prominence to the role that the mortal elements of the soul play in the perceptive processes described in the *Timaeus*, see Brisson 1999, 160–3.

the two aspects that define the *psychē* in its function and structure. But the parataxis in the expression does not allow us to grasp fully the relationship that runs between the two aspects: the soul can participate in reasoning in as much as it participates in harmony and can have a harmonic order precisely because it is conceived for the exercise of reasoning. Reasoning and harmony are two expressions of a single order: the order of the soul in its proportioned structure. Hence, the correct movement of the circles of the soul is the activity of thought and the musical framework of the soul is a structure conceived for the exercise of such an activity: the uniform circular harmonic movement of psychic orbits is the movement of knowledge.[23] Under the harmful influence of the sensations (*pathēmata*) occasioned by the body, the movements of the soul lose the faculty of individuating Sameness and Difference in the external realities with which they enter into contact, becoming 'mistaken and unreasonable' (*pseudeis kai anoētoi*). To put the circles of the soul out of order, perturbing their kinetic balance means to bring about the (possible) paradox of an unreasonable reason (44a8: *anous psychē*).

At 37a2–c5, the intellectual process that is put in a critical position by contact with the body is described in relation to the cosmic soul, but the description, in this case too, can be extended to the rational human soul (Cornford 1937, 96). Thanks to a composition made up of the genres of the Same, the Different and the Being, the soul recognises Sameness and Difference, but other characteristics too, in the realities with which it comes into contact. When intellectual activity regards the sensible (*to aisthēton*) and the circle of the Different, moving well, shares this activity with the whole soul, firm and true opinions (*doxai*) and beliefs (*pisteis*)

[23] As Johansen emphasised (2000, 89–90), there is no reason to choose between a kinetic and a cognitive interpretation of the rational soul in the *Timaeus*, as they are both contemplated in the dialogue; cf. also Pradeau 2008, 52 n. 4; for the link between harmony and the cognitive functions of the World Soul, cf. Robinson 1970, 74–5; Fronterotta 2007b, 120. The conviction that circular movement is the most appropriate to characterise the dimension of thought and intelligence is expressed in *Tim*. 34a1–5, in relation to the rotary movement of the universe, but also in *Leg*. 897c–898d, where we find the affinity between the circular movement – characterised by the fact of always happening in the same place, in a proportioned and ordered way – and intellect on the one hand, and the movement with the opposite characteristics and foolishness on the other. On cognitive activity as movement, cf. *Crat*. 412a1–4 (cf. 417a3–b1), where the etymology of the term *epistēmē* is connected to the idea that the soul, in the cognitive process, is able to follow things, (although, in 437a2–8 the converse is put forward, i.e. that the name of knowledge indicates that the soul dwells on things). Again, the idea that intellectual activity is a movement recurs in *Theaet*. 153b9–c1, in a context in which Socrates is involved in showing the existence of a universal becoming: *kinēseis* are considered the activities of study and instruction that improve the soul; the passage comes within an analysis of the importance of movement for the body and the soul and it concludes with the assertion, which could well appear in the *Timaeus*, according to which 'movement is a benefit to the soul and body' (153c3–4).

are generated. When intellectual activity regards the rational[24] and the circle of the Same, moving well, shares this activity with the whole soul, understanding (*nous)* and knowledge *(epistēmē)* are generated.[25] Here we see an illustration of the kinetic activity behind what Plato has described, in the *Timaeus* and elsewhere, as a silent dialogue of the soul with itself, a *logos* conducted 'without sound or voice in that which moves by itself'.[26] Presumably this process does not take into account the possibility of error in the cosmic soul, perfectly harmonised once and for all with its body, but it becomes a process of uncertain result in the immortal soul of man (Brisson 1974, 431).

With these considerations, another perspective is opened up from which to analyse the use of music described in 47c–e. We may try to look at the therapeutic effect that music produces in the human soul – re-ordering the circles and restoring the cognitive faculties – paying attention to the immediate reaction that music solicits in the rational soul, that is to the psychic, cognitive or emotive response to acoustic stimuli. In other words, it is a question of considering not only the psychic movement that is a re-equilibrium of the soul by music, but also the movement that is the direct response of the *psychē* to musical stimuli and of reflecting on the connection between the reactions to music and the ordering effects that music exercises.

As we have seen, by favouring a re-ordering of the circles of the soul, music contributes to the creation of conditions in which the soliloquy of the *psychē* is the expression of a correct cognitive process. The theme of a silent interior dialogue of the soul turns up again in various passages of Plato's works that are worth analysing, for the important reflections that are expressed about knowledge, sensation and psychic activity.

In *Theaet*. 189e6–190a6 the activity of thought is defined as 'reasoning that the soul conducts with itself on that which is being examined'. The soul that thinks is compared to a person who is talking to himself and the result of this activity, the opinion, is defined as a reasoning not pronounced to others with the voice, but in silence with the self. This reflection appears during the endeavour to comprehend what happens in the mind when it has a wrong opinion. Not long before, Theaetetus set aside the definition

[24] Here *to logistikon* indicates the object of intellectual activity, not the subject, as explained by Proclus, *In Tim*. II, 312, 12–14 (cf. Cornford 1937, 95 n. 3; Brisson 1974, 351; Fronterotta 2003, 208 n. 118).

[25] On this passage in the *Timaeus* and the relation between structure and the cognitive faculty of the soul, see Frede (1996, 37–8) who talks about an 'economical middle status' of the *psychē*.

[26] *Tim*. 37b3–6. For a reflection on the connection between interior silent discourse and Sameness and Difference in *Theaetetus*, see Frede 1989, 28–31.

of knowledge as sensation, to propose that of knowledge as true opinion (186e–187b); but the passage imposes the knotty consideration of how it is possible to hold a false opinion. The whole reflection regards the process with which the concepts of Sameness and Difference are mentally applied: the success itself of the interior process of reasoning is described in terms of an affirmation of Sameness.[27] To understand where the possibility of the failure of this process lies hidden, i.e. how it is possible to say that a thing is that which it is not (after having shown some absurd results of a discourse around false opinion, cf. 188a–189b), Socrates and Theaetetus are obliged to reckon with sensation once again, because – as it seems to them at a certain point – false opinion can only be produced from contact between perception and thought (195c6–d3). With the famous description of the soul as a piece of wax on which sensations and thoughts are stamped, Plato presents false opinion as the incorrect matching of an actual sensation to an imprint stamped on the soul. The effective example of a vision in the distance, onto which one is trying to superimpose information held in the mind, can be interpreted as an interior dialogue of the soul, and it is this that, in effect, Plato carries out in a passage in the *Philebus*. In *Phil*. 38b–e the conjectures concerning a vision in the distance take the form of a silent dialogue that carries a true or false opinion (*doxa*, interior discourse, that becomes *logos* at the point at which it is expressed out loud, 38e1–4).

In the *Sophist* (264a–b) this combination of sensation and opinion (*Theaet*. 195d1; *Soph*. 264b1) is the activity of the imagination (*phantasia*), that, like thought (*dianoia*) and opinion (*doxa*), is susceptible to being true or false (263d6–8), in relation to the correct or mistaken application of concepts of Sameness or Difference (263d1–4). In the *Sophist* too, the link between knowledge, perception and application of Sameness and Difference is accompanied by a description of a mental process in terms of intrapsychic dialogue. In 263e3–8 the *dianoia* is assimilated to the *logos*: the difference being in the fact that one is a silent dialogue that takes place within the soul, whereas the other is a stream that flows from the soul in the form of sounds issuing out of the mouth. The concept is confirmed not long after, in 264a9–10, where thought is defined as 'a dialogue of the soul with itself', while at 263e10–264a2, as in the *Theaetetus*, opinion is considered a conclusion reached in the silent interior dialogue.[28]

In the *Timaeus* the loss of the ability to correctly predict Sameness and Difference is expressly indicated among the types of damage that contact

[27] Frede (1989, 28) rightly underlines that *to auto* in *Theaet*. 190a3 indicates the common concept of Sameness and the conclusion of a reasoning is a correct application of the notion of Sameness.

[28] For an analysis on the theme of truth and falsehood in the *Sophist* in relation to the *Timaeus*, see Brisson 1974, 431–8.

with the body causes a soul that has in its proportioned amalgam of Sameness and Difference the possibility to produce knowledge and correct opinions (44a2). After all, in 37a–c the cognitive activity of the cosmic soul is clearly defined in relation to the capacity to individuate Sameness and Difference, as well as relationships of another type (relationships that exist between sensible things and between sensible and intelligible things), in the realities with which it enters into contact.[29] The cosmic soul – and, presumably, the rational human soul in its integral order of origin – is capable of deciphering contact with intelligible substances, but also sensible ones, through a rational procedure producing a *logos* (Brisson 1974, 343). This faculty is checkmated by the invasion of the sensible in the psychic, but from an epistemological point of view the sensible dimension is not of itself a reason for confusion in the soul, provided as the soul is with instruments that are capable of rationally understanding and interpreting that dimension.[30] Part of a sensible universe, music triggers in the rational soul a psychic movement that is the work of elaboration of acoustic stimuli: if it is possible to recognise the sensible aspect of the musical experience described in 47c–e, I think that such a recognition actually passes through an evaluation of the kinetic activity that is the interpretation of music.

Although upset in the harmony that makes up the structural foundation of its cognitive faculties, the rational embodied soul continues to participate, to a certain extent, in the capacity to take on the data of the sensible world.[31] The soul that absorbs and takes advantage of the art of sounds is precisely that rational soul that is disoriented by being tied to a body. But

[29] 37a2–b3. I take the expression in 37a6–b3 to indicate the recognition of Sameness and Difference on the one hand – fundamental in the cognitive process – and on the other, the recognition of the qualities of the identified substance. For this interpretation of a difficult passage and analyses of various possible interpretations, see Brisson 1974, 342–7. We note that, here too, the soul that knows is the soul that 'touches' things (37a6: *ephaptētai*) (above, pp. 75–6). Brisson (1974, 342) observes that the verb is used here in relation both to sensible and to intelligible knowledge, although it can only refer in a metaphorical sense to the latter. See Fronterotta 2007b, for an analysis of the cognitive process in *Tim*. 37a–c, which underlines the idea of 'contact' and interprets the cognitive mechanisms in terms of modifications of the geometric–mathematical structure that is the (cosmic and rational human) soul, offering in this way an interesting perspective to analyse the music–soul interaction in particular.

[30] In 77b6–c3, treating the limits of the appetitive soul, Plato defines the condition necessary for the development of reasoning in terms of the *psychē* withdrawing into itself, turning its attention to its own inner movement and pushing away that coming from outside. The passage is puzzling if put alongside the idea, inferable from 37b–c, that the activity of the rational soul also includes a measuring up to external movement (the reflection on the impact of music seems to be a clear example of this); nonetheless the withdrawing of the *psychē* into itself and its distancing from external movement seem to happen in a second phase.

[31] Miller 1999, 181–2. Cf. Frede 1989, 21–2, 41, as regards the interpretive analysis of the rational soul on the *pathēmata* in the *Theaetetus*, and for a reflection on the tendency of late Plato to consider rational activity on the sensible dimension to be possible, activity that differs from the cognitive activity on the intelligible dimension for the manner in which the mind applies common concepts.

if the ordered movement of the psychic circles is at the basis of a correct interpretative understanding of the intelligible and sensible contents, it is legitimate to suppose that the damage done to the psychic structure should prejudice a correct interpretation of the auditory stimuli. It would be interesting to consider the reaction of the cosmic soul to hearing music, but the world of the *Timaeus*, as we know, has no ears (33c3). On the basis of *Tim.* 37b6–8, we might imagine that, on contact with music, as on contact with any other sensible solicitation, the soul begins to speak to itself in a mute dialogue, in which the circle of the Different assumes the role of envoy for the entire *psychē*, carrying the cognitive activity triggered by acoustic stimuli.[32] To describe what occurs in the soul at this point or what turn the intrapsychic discourse takes would appear to be a complex undertaking: a description of these processes, in particular as regards the reception of music, does not exist anywhere in the dialogue. However, Plato seems very aware of the complexity that is present in the psychic reactions to music and it seems to me that the signs of this awareness can be found in the brief but meaningful reference to music in 47c–e.

In the passage, the confrontation of two ways of living the musical experience seems to be outlined: one is defined 'with the intellect' (*meta nou*, 47d3), the other by 'irrational pleasure' (*hēdonē alogon*, 47d4). Once we have signalled, if only slightly, a possible reconstruction of the psychic process triggered by music on the basis of *Tim.* 37b–c, the invitation to have a musical experience with the intellect (*nous*) is problematic. In *Tim.* 37b–c the *nous* is indicated as the product of intellectual activity, heralded by the Same and solicited by what is rational.[33] Music, as a sensible phenomenon, should not set off this process, but an intellectual reaction that generates opinions and beliefs (37b6–8). And yet in 47d3 the involvement of a *noetic* dimension in the reception of music is contemplated and, indeed, indicated as a fundamental condition in order to draw the greatest benefit from music. On the one hand, in the effort to build the mental process of the reception of music on the basis of 37b–c, it does not seem right to classify music under the category of 'the sensible' (*to aisthēton*), however important the

[32] The reflection on the sensible seems to involve the Different to a greater extent, and yet the whole rational soul is confronted with sensible content. So, on this point, I distance myself from Brisson's interpretation (1974, 439) which, on the basis of *Tim.* 37b–c, suggests that the circle of the Same should be considered as the seat of intellectual knowledge within the immortal human soul, and the Different as the seat of sensible knowledge. The involvement of the whole *psychē* in contact with the sensible seems to me to be present in 37a5–7.

[33] In 37c2 *nous* indicates the product of the mental process, 'thought', in 47d3, the mental faculty, 'intellect'. In any case, what interests us here is showing the implications of a reference to the dimensions of *nous* in the invitation to use music well for the cure of the soul.

sensible component is to the musical phenomenon. The 'logical' value that Plato recognises and appreciates in music and in the musical experience is too obvious not to think that, according to him, music petitions in the *psychē* something analogous to that which in 37c1–3 can be linked to the rational dimension (*logistikon*). On the other hand, we cannot avoid asking ourselves what it means to approach music 'with the intellect' (*meta nou*). The manner in which Timaeus, without too much explanation, puts forward the invitation to live a musical experience described purely through a reference to the intellect raises some difficulties.[34] And further problems arise if we consider the intellect (*nous)* at 47d3 in connection to the *anous* at 44a8, that is to the condition of unreasonableness in which the rational soul is thrown as a result of embodiment: to the condition to which music should bring remedy. Paradoxically the invitation to approach music with the intellect in order to bring the soul back to its original intellectual capacities may sound like an invitation to use *nous* to restore *nous*.

In *Tim*. 47c–e the involvement of the sensible dimension is only evoked in order to indicate a very incorrect (although presumably very widespread) manner of living the musical experience. The expression employed seems to irremediably confine this reaction to an opposite sphere to the rational one. The sensible component only crops up in 'pleasure' (*hēdonē*) which is, however, charged with 'irrationality': it seems that, other than an intellectualistic fruition of music, there is only an irrational one, and that a sensual participation is exclusively tied to the second, censurable, way of taking advantage of music.[35] Hence, the opposition is also between a utilitarian and a hedonistic use of music, in a context in which what counts is the usefulness that the meeting between a sensible reality and a perceptive process assumes for the good of the rational soul.[36] To link the authentic

[34] The reference to *nous* and the disinterest shown towards the sensible aspect in 47c–e again bring to mind the passage in *Resp*. VII dedicated to harmonic science, in particular to 531b1 where Glaucon, ridiculing the empiricist's work on music, concludes that they 'put the ears before the intellect'. Nonetheless, as we shall see, on the one hand the use of the intellect in music, so desired in *Resp*. VII, cannot be considered similar to that in *Tim*. 47c–e; on the other hand, the approach to music condemned in the passage of the *Timaeus* in question does not seem one that can be comparable to the empirical approach condemned in *Resp*. 531a–b.

[35] It is interesting to note how in the paraphrase that Plutarch provides of the passage in *De superst*. V, 167b, the 'irrational pleasure' in 47d4 is translated in terms that accentuate both the condemnation expressed by Plato of a certain manner of making use of music, and the sensible component of this manner: the gods endowed man with the gift of music *ou tryphēs heneka kai knēseōs ōtōn*, literally 'not for softness or tickling of the ears'. Plutarch's explanation seems to be prompted in an interesting way by the Platonic passages in which the accent is placed above all on the influence of music on the sensibility (note in particular the reference to softness).

[36] With its allusion to the two possible purposes of music, the passage in question in the *Timaeus* anticipates the place in the *Politics* (1339a15–27) in which Aristotle interrogates himself on the

value of music to 'irrational' pleasure (*alogos*), which music does however obviously solicit, means running into a misunderstanding regarding the true use of music; a misunderstanding that Plato observes in a certain contemporary way of living the musical experience (47d3–4). It seems quite clear that at this point – where the only nod to a temporal dimension appears (47d4: *nyn*) in an excerpt that is permeated with attention to the perfect extra-temporal movements of the psychic substance – there is a polemical reference to the hedonistic use of music stigmatised in particular in the *Laws*. In the *Timaeus* Plato does not seem tormented by the preoccupation of prescribing a correct music, which marks the great reflections about the use of music in the *Republic* and the *Laws*. Here attention is concentrated on the benefits that music, perhaps only meaning in its best aspect, has on the soul: it is not by chance that the only critical mention of a mistaken musical experience regards not the manner of making music, but the manner of receiving it (*hēdonēn alogon* in 47d4). Artistic polemics are not on the agenda in the *Timaeus*, nor does Plato underline a musical style suitable to help the soul to recover its order. But it is worth noting that the musical order of the soul brings a precise ethical connotation, being a diatonic 'scale' (below, pp. 189–95), and that, as a result, the music that is able to re-order it will presumably be of the same type.[37]

Yet, if it is clear that in this passage Plato is criticising an exclusively hedonistic use of music, it is less clear why the alternative to this musical experience – pleasurable, but irrational – is not a correct musical pleasure, but an experience in which neither pleasure nor further reference to the sensible dimension appear. We should ask ourselves about the significance of the emphasis placed on psychic processes, deprived of all sensible content, in this invitation to grasp the true value of music: the rotations of the circles, the contact with similar regular movement and the activation of *nous*.

The *Timaeus* contemplates the existence of an emotive reaction that can be married with – indeed can be an expression of – the rational fruition of music. In 80b5–8, at the end of an explanation of the phenomenon of concord (80a3–b5; below, pp. 171–80), the idea finds expression in which the perception of 'concord' (*symphōnia*) brings about 'pleasure' (*hēdonē*) in the 'unintelligent' (*aphrones*) and 'delight' (*euphrosynē*) in the 'wise'

purpose of dedicating oneself to music, whether it is for delight, rest, the influence that music has on the formation of character, or the support that it brings to intellectual recreation. Cf. also *Pol.* 1339b10–31, where Aristotle assesses the pleasure brought by music ('one of the pleasantest things') as a positive aspect in relation to the purpose of music, either intellectual recreation, pleasure or education.

[37] See Lippman 1964, 90–1. For Plato's preference of diatonic music, cf. Theon Sm. 56, 3.

(*emphrones*), due to the representation of the divine harmony in mortal movements (*dia tēn tēs theias harmonias mimēsin en thnētais genomenēn phorais*). Analysing this passage in relation to 47c–e, we should not neglect the fact that in 80b5–8, Plato seems to consider the emotive reactions to a particular acoustic stimulus, concord, and not music in general. This fact has a problematic significance in relation to the passage in which it is located: it is quite complicated to interpret *hēdonē*, *euphrosynē*, and *mimēsis* in relation to the production and the reception of concord alone, as such terms usually refer to music in general. The most convincing interpretation would seem to be that of Barker (2000, 91–2) who notes how the passage appears to imperfectly merge two distinct reflections: one on concord and dissonance, phenomena described in scientific terms; the other on musical and non-musical relationships. It is precisely this last contraposition that is central to the whole passage. Thus, pleasure and joy should be understood as reactions to music in general, which is a reproduction of divine harmony. So it is legitimate to parallel the reactions and dispositions tied to musical experience in 47c–e and those present in 80b5–8;[38] and it is also legitimate to try to comprehend the relationship between *meta nou* and *hēdonēn alogon* in the light of the opposition between *hēdonē* and *euphrosynē* as well.

Let us begin by analysing the opposition found in 80b5–8. The clearest difference, suggested by the words themselves, regards participation of the intellect: absent in the first reaction, fundamental in the second (Barker 1989a, 63 n. 33). An exclusively sensual pleasure contrasts with the joy of knowledge, although the physiological and kinetic cause of the two emotions is identical: the acoustic stimuli of music. In an even more marked manner, the difference between 'to feel pleasure' (*hēdesthai*) and 'to feel delight' (*euphrainesthai*) appears in the *Protagoras* (337c1–4) among the terminological subtleties that Plato, not without a good dose of irony, puts into the mouth of Prodicus. One feels delight – says the Sophist – when learning and participating in intelligence with the mind alone (*autē tēi dianoiai*); whereas one feels pleasure when eating or feeling other pleasurable impressions just through the body (*autōi tōi sōmati*). Here the difference is put forward in terms of a psychic or somatic reaction, but it is highly improbable that one can read the contrast to be found at *Tim.* 80b5–8 in analogous terms. In particular, not only is it difficult to understand the *hēdonē* in *Tim.* 80b5 as a pleasure of the body, but there is also doubt that it is a pleasure that can be traced to the sphere of sensibility, i.e. of the senses and the mortal soul.

[38] On the terminological relations between the two passages, cf. Wille 2001, 734 n. 474.

In 67b2–5 sound is defined as 'the impact transmitted by the air, through the ears, to the brain and blood until it reaches the soul'; hearing is the movement that the impact generates from the head to the liver. Although the involvement of the soul in its mortal and immortal components in the auditory mechanisms described here is not entirely clear, it is quite obvious, in the description both of the object of acoustic perception and the perceptive process, that there is a certain involvement of the rational soul. This involvement can be seen in the reference to the brain and the head as locations touched and interested by the passage of sound.[39] Furthermore, analysing the description of the perception of sound in the light of the passages in which Plato describes the process of the formation of the sensations in general, the idea that the rational soul plays an important role in the perception of music emerges reinforced.

In 42a3–b2, assessing the connection of the immortal soul with a body, Timaeus explains both how in the (rational) soul sensation is born from the affections and how all those psychic reactions born of embodiment come forth (among them *hēdonē* as well*)*. In 43c4–7, the idea is even more limpidly expressed that the sensations are the movements of *pathēmata* (affections) transmitted from the body at the moment when they reach the soul, such that the sensation, whichever it might be, could well be seen as produced by the body, but once the soul is bound to a body, sensation concerns the *psychē*, and to be precise the rational *psychē*. Another passage seems yet more interesting in this respect, linking the general discourse on sensation to the particular perceptions of sight and hearing. In 64b–c, following the description of the mechanism by which the affections, hitting parts of the body endowed with motility and the consequent ability to transmit, arrive at the rational soul (that is, the process by which the *pathēmata* become *aisthēseis*), Plato specifies that the perceptive mechanisms of sight and hearing are examples of processes of the type. The involvement of rationality is here emphasised by the use of *phronimon* to indicate the part of the soul, which is the end of the journey of the affections. To close the reflection on the role of the rational soul in perception in general and in

[39] Further facts about the involvement of the soul in its various functions might emerge from an analysis of the expression 'to the soul' (*mechri psychēs*) in 67b3 (Moutsopoulos 1959, 32–3; below, pp. 161–3). Considering the expression in a spatial sense, one might think that Plato is referring to the soul located in the part of the body furthest from the place in which sound arrives, hence to the appetitive soul; but the expression appears in a description of sound moving from the outside to the inside of the body and from there to the soul (67b2–4), while the passage of sound through the body touching the three locations of the soul is described afterwards (67b4–5). The same expression – *mechri tēs psychēs* – appears in 45d2, in the description of visual sensation: the propagation of the external visual stimulus through the body until it reaches the soul seems analogous to that described for sound. Cf. *Leg.* 673a3–5 where the expression 'to the soul' is part of the definition of music.

acoustic perception in particular one may note that all the passages referred to here, including that which describes the perception of sound, appear before the description of the origins of the mortal soul that can be found in 69c–d. At that point there is a strange incongruence with the previous passages: those reactions, attributed to the rational soul in 42a–b (*hēdonē*, *lypē*, *phobos*, *thymos*), seem here only to concern the mortal soul.[40] The question regarding which element of the soul perceives in the *Timaeus* is a complex one and it seems to me that none of the cited passages clarifies it decisively. However, I believe that these passages urge us at least to recognise that the rational *psychē* has a role in the perceptive process and come down decisively against the hypothesis (Silverman 1990, 148–58, 174) that perception (*aisthēsis*) in the *Timaeus* is 'a non-cognitive capacity of the irrational soul'.

In general, the emphasis on the role of the rational soul in the perceptive process seems to be a characteristic trait of late Plato.[41] And it is in this framework that the reflections in the *Timaeus* on sensation in general and acoustic perception in particular are inserted, as we shall see by more fully analysing the perceptive processes triggered by music (below, ch. 4). In *Theaet*. 184b–d a clear formulation of the active role that the soul plays in the management of perception (that of sounds being explicitly indicated, 184b8–9) is expressed through the precise use of the dative and the preposition *dia*. Socrates, at the risk of seeming a pedant, rushes to correct Theaetetus' remark, according to which we see and feel *with* eyes and ears (*ommasi te kai ōsin*): we see and hear *with* the soul, *through* eyes

[40] Cf. also 77b5–6, where sensations, pleasure, pain and desires are traced to the appetitive soul. On the idea that passions and sensations concern the immortal soul itself, cf. *Leg*. 897a. For comparison between this passage in the *Laws* and *Tim*. 69c–d that is in apparent contrast, cf. Hall 1963, 76–8.

[41] The *Philebus* also individuates the location of every impulse and desire in the soul (35d2), denying that it is the body that perceives certain affections. But previously in the *Republic* the idea emerges that it is the soul that feels the states generally attributed to the body: in 439a9–b1 it is said that it is the soul that is thirsty and desires to drink. The same passage illustrates how the interiorisation of sensations and passions develops in parallel to a more articulated notion of the soul: those affections that in a dualistic vision, specific to the *Phaedo*, are traced only to the corporeal dimension, become, in a different perspective, the baggage of the soul that is difficult to manage (but cf. previously *Gorg*. 496e). In the *Republic* there is an indication of how the soul, through rationality, manages to create order among contradictory sensations (524a–c): in some way there is the outline of the idea – developed in the *Theaetetus* – that the job of interpreting sensations lies with the soul (the crude data of sensations, for the soul, are strange interpretations that need further investigation). On the idea, in this passage, that the senses are known to have an autonomous capacity of judgment, cf. Burnyeat 1976, 35. However, it should be emphasised that in this passage there is a distinction between objects that are perceptible through sensation alone and objects that require rationality, cf. 523a10–b4, for further reflections on the passage, below, ch. 3. On the relationship between perception and conceptualisation in late Plato, cf. Bobonich 2002, 354–7.

and ears.[42] Evidently it is not merely a question of syntax nor a precision that regards only the corporeal dimension, but of an aspect that interests the soul too and above all the relationship between soul and body. It is the soul that is the active subject of perception, while the senses are nothing but the 'organs' that it uses.[43]

The *Timaeus* also seems to conceive the relationship that is installed between the soul and senses in instrumental terms – sound passes 'through the ears' (*di'ōtōn*) to get 'to the soul' (*mechri psychēs*) – and indicate that the acoustic sensations do not gather in the soul as in a receptacle – to use the words of the *Theaetetus* (184d): they are not seated as though in a wooden horse – but they 'tend' to the soul, as to the place where they can really be grasped and interpreted. In *Theaet.* 184c–d it is not clear if the perceptive process of the soul is considered a mere 'sensible awareness' or if there is also a minimal conceptualisation in the classification of sensible data (Cooper 1970, 130–4). In any case it presents a very clear distinction between the role of the senses and that of the soul in the perceptive process, an acquisition of late Plato that cannot be ignored in the reflection on the perception of sound in the *Timaeus*. The idea, effectively upheld in the *Timaeus*, that it is the soul that listens to and understands music and benefits from its effects is in perfect accord with a consideration of the soul involved in the perceptive moment.

In the light of these considerations, it seems at the least problematic to take the musical *hēdonē* at 80b5 to mean a non-rational emotion, a reaction that does not involve rationality at all. It is not musical pleasure of the ears, precisely because an exclusively corporeal musical pleasure (that is only solicited by inducement of the auditory organs) does not seem to be contemplated;[44] but equally nor can we assume that musical

[42] It is interesting to consider *Phaed.* 82d9–83c3 relative to the role of the body and the soul in the cognitive process of reality, a passage in which the preposition *dia* is used several times. In a gloomy context in which the mind–body connection is conceived as a chaining together, Plato asserts that the soul 'is obliged to examine realities *through* the body as *through* bars, not just *through* itself'. The body does not seem to have an instrumental role here, but that of a physical place, of a barrier that must be *crossed* to attain true knowledge that is obtainable only through the use of psychic resources; the cognitive investigation 'through the eyes, through the ears' (*dia tōn ommatōn, dia tōn ōtōn*), by anything other than the soul, is deceptive. Such a vision is explained in the framework of a reflection in which investigation is only that of the ideal realities, and that conceives the mind–body relationship in terms of opposition. In the late dialogues, on the one hand the possibility of actuating cognitive processes on a sensible reality is also contemplated, on the other the distance between the rational soul and the corporeal dimension is filled.

[43] Burnyeat 1976; Frede 1987.

[44] Neither can 'irrational pleasure', contrasted in 47c–e with listening to music oriented by the *nous* (intellect), be understood as a reaction brought about by the involvement of the senses alone. From this angle Plutarch's paraphrase (above, p. 95 n. 35), putting the accent on the sensible component

hēdonē is a pleasure induced by a reaction of the mortal parts of the soul alone.[45]

In the other musical emotion, the *euphrosynē*, an involvement of the rational soul, seems easily recognisable, but we must ask ourselves about the nature of this involvement. It is again a passage treating terminological questions that provides us with the cue to investigate the psychic process linked to musical joy. In *Crat*. 419d4–7 the term *euphrosynē*, in the precise sense of the word *eupherosynē*, comes from 'the motion of the soul in accordance with things'. The observation turns our attention to the kinetic aspect of the deepest musical emotion.[46] In *Tim*. 80b6–7, the reason why the wise (*emphrones*) feel delight when listening to music is indicated in the 'mimesis of divine harmony in mortal movements': hence *euphrosynē* would derive from the recognition, in the movements of music, of the representation of a supersensible harmony, the cardinal concept on which the pairing of music and astronomy turn, or – to use an expression more faithful to the *Timaeus* – of a therapeutic contemplation that is visual and one that is acoustic. It does not seem to be by chance that the concept of mimesis recurs in the reflection on the profound value of sight in 47b5–c4, indicating the emulative phase in the contemplation of the heavens: the effort to reproduce 'the wholly regular movements of the divine' (47c3–4) to correct one's own errant movements. The absolutely perfect movements of divine harmony, content of musical mimesis, are the same as those found in the heavens and reproduced by whoever uses observation of the stars for the good of the rational soul.[47]

It is reasonable to suppose that an analogous mimetic mechanism is at the basis of the tuning of psychic circles by means of music, described in 47c–e. The affinity between psychic and harmonic movements might well

of that non-logical pleasure, risks hiding the real sense of the Platonic polemic. Cf. Bobonich 2002, 359–60: '. . . even a quite basic appreciation of harmony or rhythm involves perceiving it as some kind of order and such a perception can constitute a pleasure. Even such a low-level perception of order in harmony involves conceptualising it in accordance with concepts drawn from reason.'

[45] Cf. Moutsopoulos (1959, 261) who takes the *hēdonē* in 80b5 to mean 'un plaisir irrationnel ressenti par le *thymikon*'.

[46] Significantly, in *Crat*. 405c6–d5 it is the theme of consonant movement that offers the terminological base for the pairing of music and astronomy, noted above and here linked to the figure of Apollo: since the alpha is equivalent to *homou*, 'together', the name of the divinity indicates a 'movement together, consonant' (*homou polesis*), found as much in the heavens as in the harmony in song.

[47] The two references to mimesis, found in the *Timaeus* in relation to the vision of the stars and listening to music, seem to condense the double aspect that we have raised in the notion of musical mimesis (above, pp. 42–3): the representative faculty of music (80b6–7) and the mimetic mechanisms set off in the human *psychē* (47d–e). In the final reference to the importance of turning to the harmonies and circular movements of the universe for the cure of the rational soul, in place of the concept of mimesis, that of the assimilation of the contemplating subject to the object contemplated recurs (90d4–5).

be seen as the requirement for a process of assimilation, in a similar manner to 47b5–c4. In any case, the use of music in 47c–e supposes a contact with, and perhaps even a certain recognition of the profound content of music: the representation of the rotations (*phorai*) of divine harmony. We could not understand how music can carry the soul back to its original proportions if it does not bear and manifest the order that belongs to cosmic harmony. The constant and ordered dynamism of the rational soul prior to embodiment is the product of the harmonic equilibrium of the Same and the Different; such dynamism is reproduced by a correct music, which, not by chance, restores order in the perturbed cycles of the soul.[48] I would like to suggest that in *euphrosynē* (80b6) we see the emotion of musical experience characterised by *meta nou* (47d3): the pure joy of the soul brought back to its musical origins, to the harmonic mixture formed in a mixing bowl by the knowing hands of the demiurge (41d4–7). The contact of the soul with the similar reality of harmony and the regaining of movements and faculties proper to the *psychē* would, therefore, have an emotive implication. The *euphrosynē* reveals itself – just as the *Cratylus* puts it – to be the expression of a concerted movement of the soul with something: in this case, a concerted movement of the soul with the harmonic component of music, and hence with cosmic harmony.

If such a reading is correct, it fills the hole in 47c–e made by the absence of reference to the emotive aspects of the correctly practised musical experience. The level of awareness implied by *euphrosynē* conforms well with a type of listening to music oriented by the *nous*: the most intense musical pleasure that can be felt consists of an intellectual pleasure, an emotion that involves sensibility and reason, in the discovery of the principle that endows music with intelligibility. The affirmation in the *Laws* (658e–659a), according to which it is correct to judge music on the basis of pleasure as long as it is pleasure felt by the best people, can be fully understood in the light of what emerges from an analysis of the *Timaeus*. The *intellectual* pleasure in the wise, deriving precisely from the correctness of musical expression, is the only reliable emotive criterion when it comes to judging music. The 'wise' (*emphrones*) of the *Timaeus* share with the 'wise judge' (*emphrōn kritēs*) in the *Laws* (669a9) the ability to see beyond the sensible dimension of the musical phenomenon and find a principle of perfection.[49] But it

[48] The impression issuing from the idea that music carries an extraordinary ideal of order in the phenomenal world – a strong impression throughout the treatment of music in the *Timaeus* and Pythagorean reflection – is also present in a passage in the *Elementa harmonica* by Aristoxenus. Condemning those who analysed music so badly as to attribute maximum disorder to it, Aristoxenus asserts: 'Yet no objects of the senses have such a great nor perfect order' (10, 7–8).

[49] See Moutsopoulos 1959, 243 n. 6.

is fundamental to note that this capacity comes out during an experience that is above all a sensible experience. The *Laws* places the accent on the importance of the perceptive faculty in the formation of a correct musical judgment in a very clear manner: the possession of a 'keen sensibility' is one of the requirements of the musical judge (670b2–6, 812b9–c7; see Barker 2000, 97).

In this way, we have found an emotive moment in the musical experience characterised by the intellect in *Tim*. 47c–e, but this does not clarify what is meant by such a listening to music. We still have to comprehend the level of awareness that is needed to take advantage of music 'with the intellect' (*meta nou*) drawing out 'delight' (*euphrosynē*): for example, we should ask ourselves if it is correct to interpret this musical experience as a recognition of the numerical ratios that are at the basis of the rationality of music and a recognition of the link between these ratios and cosmic harmony. Furthermore, we should try to collocate the emotive phenomenon of musical *hēdonē* in some sort of psychic dimension, since we have decided not to accept it as the expression of a non-rational approach to music. So, to comprehend exactly what it means to draw pleasure or joy from music, we must once again interrogate ourselves on the mechanisms that are triggered in the *psychē* on contact with sound and on the role that rationality and sensibility play therein.

As we have seen, in the *Timaeus* Plato thrice refers to musical emotions. The 'irrational pleasure' of 47d4 is only mentioned, it seems, in order to be excluded from the dimension of a correct fruition of music, but it is very important in relation to the reflection of the *Timaeus* on music as a whole; and then there are pleasure and joy in 80b5–8, considered as possible antithetical responses to music. We can interpret these musical emotions in terms of important modifications of an intrapsychic order, in a dialogue that pays great attention to the deep structural modifications that music provokes in the soul. The most immediate, simplest and presumably most diffuse emotive reaction (it is legitimate to imagine that the number of the *aphrones* is greater by a long way than that of the *emphrones*) – a certain *hēdonē* – is elsewhere interpreted as a *kinēsis* (movement) or a relevant modification that takes place in the soul (*Resp*. 583e9–10, *Phil*. 43c4–6). Now, the reflection on the therapeutic use of music in the *Timaeus* (47c–e, 88c) induces us to conceive of the musical experience precisely in terms of an exposure of the rational *psychē* to a reality that is able to modify the rational soul's structure, returning it to its natural order. But it is easy to see that such a process contains the definition of *hēdonē* as Plato presents it on several occasions in the *Timaeus* and elsewhere.

In *Tim.* 64d1–2, the sensation of pleasure is defined as an 'affection' (*pathos*) that suddenly restores the natural condition (*eis physin*); at 81e1–2 the concept is confirmed: what is 'against nature' (*para physin*) is painful, what is 'according to nature' (*pephyken*) is pleasurable. The consideration of pleasure as a movement towards nature (*physis*) appears in the *Philebus*, which, with expressions yet more fitting in relation to music, defines pleasure as a 're-harmonisation' and restoration of the true nature (31d8–10, cf. 42d5–7). If it is correct to think that musical therapy in the *Timaeus* has some sort of positive ordering effect on the rational soul of the *aphrones* as well,[50] then the *hēdonē* (pleasure) that follows this therapy can be interpreted as a reaction to the restoration of that psychic equilibrium which is the natural state for the rational soul.[51] Obviously this reading is upheld by the idea that no reaction to music (even the most immediate) is free from involvement with reason, because music – as we have seen – passes through the head and touches and cures the rational soul in some manner. From such a perspective, *alogon* in 47d4 indicates a non-logical pleasure not in that it is non-rational, but in that it is not solicited by perception of the *logical* relationships that make up the link between *psychē* and music: *hēdonē* at 47d4 is *alogos* just as *alogos* is *aisthēsis* (sensation) at 69d4, in a dialogue that frequently underlines the involvement of reason in the birth of sensations.[52]

[50] Is it necessary to understand music fully in order to gain the beneficial effects for which it was given to man? This is an interrogative that the observations on music in the *Timaeus* raise and to which I think we should respond in the negative. In 47c–e, Timaeus does not say that it is necessary to understand the affinity between the movements of the soul and those of harmony to reap benefits from music, while everything points to the fact that the existence of that affinity guarantees an ordering effect to every soul, with a process analogous to that in *Resp.* III and in the *Laws* that guarantees the acquisition of correct ethical habits. Nonetheless, it seems to me that in the *Timaeus* Plato means to suggest that practising the musical experience with awareness ensures the rational soul a greater advantage (that is a musical experience characterised by *meta nou* and the *euphrosynē*). Cf. Bobonich 2002, 358: 'The process is also surely scalar: the circle of our souls can be more or less distorted and the degree of their restoration depends on our intelligent appreciation of harmonies or of the revolutions of the stars.'

[51] The assimilation to the order of harmonies and celestial movements, for the good of the immortal soul, is conceived in 90d5 precisely as an attempt to move 'towards the old nature' (*kata tēn archaian physin*). It is interesting to note that a correlation between musical pleasure, ordered movement and natural condition can be found in one of the questions considered in the nineteenth collection of the pseudo-Aristotelian *Problemata*. In ch. 38, the author explains musical pleasure as a result of the fact that music bears ratios, manifestations of order: natural pleasure consists in order. With expressions that closely recall the reflections in the *Timaeus*, the pleasure kindled by rhythm is described as a consequence of the fact that rhythm 'has an ordered number known to us, able to make us move in an orderly way; indeed, ordered movement is naturally more kindred to us than disordered movement, with the result that it is more natural'.

[52] On the difficulties raised by non-rational sensation (*aisthēsei alogōi*) in 69d4, see Brisson 1999, 161–3, who explains how sensation in itself is not non-rational: it is non-rational only until the *pathēmata* have reached the rational soul. Cf. also Ganson 2005, 9.

The return of the psychic structure to its natural order is also at the basis of the deepest musical emotion, the *euphrosynē*: an emotion that in turn derives from a movement towards nature but lived, in this case, 'with the intellect'. It is a question of being aware of the activity that music carries out in the soul and above all the motive for it to behave in such a way: this concerns gathering the supersensible content of music and the affinity between that content and the original structure of the rational soul. At the basis of this musical emotion there is a rational activity aimed at discovering the reflex of intelligible harmony in the acoustic solicitations, highlighting the value of a 'revelation' in music (Moutsopoulos 1959, 265). Musical joy is the delight that comes from the individuation of the high representative content that is carried by music; it is the pleasure that comes from the exercise of a correct activity of thought about music: hence it is an intellectual pleasure, i.e. the pleasure that characterises the rational part of the soul (cf. *Resp*. 580d–581e). The *emphrones* can be distinguished from the *aphrones* by their ability to make of the musical experience an experience that is proper to the rational soul, attributing to reason an active role in its contact with music, marked, at the start, by a passivity of the mind which has been *run over* by acoustic stimuli. In a spatial and temporal dimension, the rational activity on music takes place after the impact of sound on the head and the rest of the body, and acts on the reflexes of sound that reached the seat of the appetitive soul (67b–c). The *euphrosynē* comes to life in the moment of the rational reconsideration conducted (by *emphrones*, not by *aphrones*) on the impulses that have anyway already interested the soul, mortal and not. My explanation, concentrated as it is on the difference between two ways of profiting from music, is greatly advanced by Barker's interpretation (2000) in *Tim*. 67b–c and, in particular the hypothesis that a basic level of reception of music consists in the perception of 'images' reflected by the liver, while a more profound reception consists of the rational consideration of such images. But we will have the opportunity to return to this hypothesis later (below, pp. 162–3).

It strikes me that the distinction outlined by the *emphrones–aphrones*, *euphrosynē–hēdonē* opposition in 80b5–8 and by the reflection on *meta nou* and *hēdonēn alogon* in 47c3–4 can be seen throughout the reflection on music in the *Timaeus*. The dialogue seems to contemplate two rather different approaches to music, two levels of reception and investigation of the stimuli of sound and musical messages. The clue to this distinction comes from a passage in the *Theaetetus* (186b11–c5), in which Socrates makes a distinction between the sensations that man and animals feel from birth, that is 'all the affections which reach the soul by means of body' (*hosa dia*

tou sōmatos pathēmata epi tēn psychēn teinei) and the reflections that some, with time, experience and education, manage to develop around these sensations, regarding their essence and usefulness. I would like to underline how, even in the terminology used, this passage recalls the reflection on music in the *Timaeus* and, in some way, highlights the contents of the latter as well. The description of the sensations in terms of affections (*pathēmata*) that reach the soul through the body, is identical to that described in *Tim*. 43b–c; while the reference to the usefulness as being the result of a reflexive process on the sensations again brings to mind the emphasis put on the usefulness of musical stimuli in *Tim*. 47c–e. Besides these references, the distinction in *Theaet*. 186b11–c5 between a diffuse faculty to perceive and a rare capacity to understand the contents of the sensations[53] may recall the distinction between the two types of reaction to music in the *Timaeus*.

An elementary reception of music – the passage of sound from the body to the soul – seems guaranteed, in the *Timaeus*, by the psychophysical structure of man: the perception of the harmonic and rhythmic structures that make up the musical discourse seems the prerogative of all human beings. I would like to suggest that the statement in the *Theaetetus* in which there exist sensations perceived by nature from birth, if considered in relation to musical stimuli and only the human genre, may recall the passages in the *Laws* in which man's possession of an innate musical sensibility is underlined. Whereas the faculty of guiding a reflection on sensations produced by music is the outcome, which should not be taken for granted,

[53] This passage comes down in favour of the hypothesis that the perceptive act, in the *Theaetetus*, is a mere 'sensible awareness', free of any conceptualisation, of which both children and animals are incapable. To perceive red means to have the sensation of a colour and not recognise what it is. However, in the passage in question the process contrasted with this perceptive act is not the mental operation of classification of sensible data, but the much more complex process of *reflection* on sensible data: it does not mean to 'acquire the concepts of redness or hardness', but to 'understand their nature' (Silverman 1990, 171). As Cooper clarified (1970), in the *Theaetetus*, Plato does not rigorously distinguish the process of mere perception of a sensible and that of classification, processes closely connected to each other and clearly distinct from that which is of more interest from a cognitive point of view: the reflection that the mind carries out on the sensible data, applying the *koina*. For Modrak (1981, 51) 'the argument at 184–186 supports our account of the difference between perceiving that this is S and knowing that this is S'. In this interpretation a propositional content is clearly recognised in perception. 'This is S' (where S is a sensible quality) is a perceptive judgment, i.e. the expression of a state of things immediately given in perception: 'knowing that this is S' means to judge that this is S and understand the importance of the judgment, i.e. that it is a judgment on a phenomenal object. I am not convinced that in *Theaet*. 186b–c we can attach the power of judgment to perception, but I fully agree with Modrak about the idea that the other process indicated here, the exclusively mental one, is a process that goes well beyond predicating the existence of a sensible. A detailed analysis on the relationship between perception and common concepts, including the analysis of a passage in the *Theaetetus* that we will have occasion to cite (206a–b), is present in Silverman 1990, 158–68, whose conclusions, however, differ greatly from my own.

of an education in particular mental conditions. In the expression *mogis kai en chronōi dia pollōn pragmatōn kai paideias* ('with difficulty, and after much time, by means of a good dose of experience and education') in *Theaet*. 186c3–4, we can see all those conditions that make a contribution at the birth of the wise (*emphrōn*) in the *Timaeus*: an individual capable of consciously listening to music. The capacity to produce 'reasoning' (*analogismata*) around music or – to put it in terms used in the *Timaeus* – to discover the divine harmony of which music bears the reflex, presumably derives from a correct training in the rational listening to music, but also without doubt from restored functional conditions of the rational soul (Barker 2005, 125–6).

Now there clearly emerges an aspect that we have only touched on heretofore: the condition of the rational soul at the moment when it is *run over* by sound influences the way in which it undergoes musical experience. Music causes a re-ordering of the circles of the soul and restores the original intellectual faculties, but in order to be understood and exploited to the full it is necessary that music encounters a psychic reality that is already to some extent reconstituted in its harmonic ordering. The *emphrones* in 80b5–8 have already entered 'into reason' (44b7) and with this they approach music. The affinity between the movements of harmony and the movements of the *psychē* is indicated at 47d as the reason why music can bring order to the soul; but, at the same time, it is the reason for which some (in possession of a soul that moves according to proportioned movements that are similar to those of harmony) understand music, grasping the relationship between soul, harmony and cosmic order.

In cognitive terms, approaching music with the circles of the soul in good structural and functional condition means having the possibility to fully decode music's messages, setting off an articulate intrapsychic discourse. It is of interest to note that in the same works in which the theme of a silent interior dialogue appears – the *Theaetetus*, the *Sophist* and the *Philebus* (above, pp. 91–2) – there are, more or less explicit, references to a profound comprehension of music. We will soon briefly analyse the relevant passages in these dialogues, placing most attention on the *Theaetetus* and the *Philebus*.

In *Theaet*. 206a–b, during a demonstration of the greater knowability of elements with respect to their combinations, Socrates uses the example of music: like grammar, music lends itself well to showing that the knowledge of the 'alphabet' of an art is preliminary and necessary to the knowledge of the art itself. For example, in the art of playing the *kithara*, one needs first of all to develop the ability to follow every sound and distinguish

which string it belongs to (206a10–b3), i.e. the faculty of recognising the 'elements of music' (*stoicheia mousikēs*). It is about the elementary ability to perceive/classify the acoustic and visual stimuli of the sounds and strings of an instrument. In such a case we cannot talk just of a sensible awareness, since the process clearly also involves an operation of classification. Nonetheless, the example of music seems to open up the field to two types of question. (1) The idea that the classification of sensible objects is an operation that is close to mere perception can be true for a sensible like colour (under the stimulus of colour x, the colour can immediately be identified as red or blue), but not for musical sound: under the stimulus of sound x, the identification of the sound as a 'c' or a 'd' is not at all immediate (at least not for everyone).[54] (2) A basic knowledge of the art of playing the *kithara* involves connecting the acoustic stimuli of sound to the visual stimuli of the strings. As the iconographic evidence also reveals, musical teaching methods were presumably based on the pupil repeating the notes played by the teacher, hence on decoding and making connections between acoustic and visual stimuli. But this implies the comprehension and application of common concepts of Sameness and Difference to objects of different senses: precisely the type of operation that reflective activity of the mind is in the *Theaetetus*. Both points obviously merit investigation but this is not the place to treat them.

In any case, in *Theaet.* 206a–b the knowledge of music seems to be something other than this basic preparation. As Socrates clearly shows regarding the letters and syllables (206e–208b), to explain something 'through the elements' (*dia tōn stoicheiōn*) does not mean exhibiting a knowledge of the argument, since it is possible to recognise the single elements without the ability to penetrate deeply into the system of connections that constitutes the essence of a structure. Applied to music, the discourse shows that a correct decoding of acoustic and visual stimuli, through the concepts of Sameness and Difference (i.e. correctly associating sound x with string x) cannot be called knowledge of music as it would have to consist in a deeper intellectual task carried out on the sensible data. In the *Theaetetus* there is no further analysis of musical knowledge; after all, the dialogue, as we know, closes without finding a definitive response to the question relative to the essence of knowledge in general. But Plato reflects on grammar and music in the *Sophist* as well. Here he firmly underlines the difference between the expert and the lay-man, in relation to the ability to recognise the links between single elements and the reason for them (252e–253b): the

[54] Frede 1989, 42 n. 4.

mousikos is one who possesses the art of recognising which high-pitched and low-pitched sounds do or do not combine, while the 'un-musical' (*amousos*) is one who does not possess such an art.

The distinction between a scientific and non-scientific reflection on letters and sounds turns up again in the *Philebus* (17a–e). To be able to recognise high, low and intermediate tones does not mean being a musical expert, since musical knowledge is based on the comprehension of the quantitative and qualitative value of musical structures (17b–e). In 17c4–9 Socrates puts forward the grasping of the existence of high and low pitched and *homotonon* – the term in function of which we speak of high and low pitched – as a condition in order to develop musical knowledge.[55] But to be called a *mousikos*, one also has to be able to grasp 'the number of intervals' (*diastēmata*), how many and what they are, and recognise the 'limits of the intervals'; furthermore, one needs to be able to individuate the 'combinations' (*systēmata*) deriving from them, that is the *harmoniai*.[56] In 17b–e, sound is understood as the unity and multiplicity on which the art of music intervenes, introducing a limit. The real musical expert – who is also the real dialectician[57] – knows how to grasp the dynamics of the Limit and Unlimited, the numeric component of music, within musical structures (17d4–e6). Music seems to exalt the mathematical significance of the ontological principles that inform reality: Limit and Unlimited; but the musical act that marks the 'unlimitedness' of sound with the Form of harmonic structure also has a metaphysical value.

The idea that music, as harmony, realises a synthesis of opposites finds endorsement in a further passage of the *Philebus* (26a2–4). Along with health and the seasons, music provides an example – the most convincing in all probability (Kucharski 1951, 43) – of the combination of Limit and Unlimited. Musical creation reaches its perfection by the introduction of a 'limit in high and low pitch, in fast and slow' (26a3–5): the beauty of music, like that of all the realities, comes from the harmonic combination of opposing principles through the application of the number (25d11–e2). Musical science leads to a process in which the 'unlimitedness' of high- and low-pitched tones, of fast and slow is translated into the 'limitedness' of fundamental harmonic ratios, perfectly expressible through numbers (Moutsopoulos 1959, 342).

[55] Barker 1996, 146–7; Serra 2007, 135–6.

[56] 17c11–d3. On the basis of the technical–musical terminology in this passage as well, Barker (1996) has demonstrated that the basis of the musical theory of the *Philebus* is not Pythagorean, as might at first be imagined; in general, the range of theoretical ideas behind the different references to music in the *Philebus* seems complex and cannot be reduced solely to Pythagorean thought.

[57] Barker 1989a, 64 n. 38; Moutsopoulos 1959, 61.

The two passages in the *Philebus* mentioned here (17a–e, 26a) both highlight the 'commensurability' of the art of music, in a dialogue in which ideal reality is also scrutinised through the numerical principle by which it is informed (Kucharski 1959, 71–2). The expression 'number in relation to number' (*pros arithmon arithmos*) (25a7), that reappears in the *Timaeus* during the complex description of the genesis of the World Soul (36b3: *arithmou pros arithmon*), is employed here to indicate all the realities that fall into the sphere of the Limit. The expression is probably endowed with a precise technical meaning and indicates that which can be expressed numerically through a rational fraction (Kucharski 1951, 45). Deriving precisely from the work of the Limit on the Unlimited, music is the bearer of an inestimable value: the reflection of an ideal law and order (26b9–10), under the sensible form of sound. The content is quite similar to the divine harmony talked about in the *Timaeus*, to comprehend which a less common approach to music is required.

The difference, which we have seen in these passages, between a scientific and a non-scientific way of comprehending music can be traced to diverse psychic elaborations of perceptive stimuli. At the appeal produced by a succession of musical sounds, two very different silent dialogues are triggered in the soul of the *mousikos* and the non-*mousikos*.[58] The *musical* individual is able to grasp the concatenations and relationships that reveal the rationality of music: he is thus able to recognise an ideal structure in the sensible material of sound. To recognise a representation of divine harmony in music means finding a non-sensible paradigm in perceptible sounds and assessing the significance of perceptible music in the light of the relationship with this supersensible harmonic principle.

Returning to *Tim*. 37b–c and the analysis of the two intrapsychic dialogues conducted there, we will now endeavour to describe what happens in the rational *psychē* when it is touched by music. As it is a question of sensible solicitations, it is probable that initially the sounds activate the circle of the Different. This elementary decoding of acoustic stimuli remains the only one possible for the majority: for most people music, absorbed only in its sensible component, remains confined in the sphere of the 'sensible' (*aisthēton*). In the *psychē* of an individual who can recognise the *logical* component of music, the circle of Same, appointed to the decodification of realities that belong to the dimension of 'the rational' (*logistikon*), is also activated under the stimulus of sound. The idea that the rational soul is made up of the Same and the Different, in order to be able to match itself

[58] Cf. Frede 1989, 38–9; 1996, 31–4, 49–50: I make constant reference to both articles here.

with the sensible and the intelligible, finds confirmation and an interesting perspective for analysis in this reading of the comprehension of music. It is easy to note that an articulate interior dialogue of this type presupposes a psychic apparatus in good condition: which goes along with the idea that to fully understand music it is necessary to have acquired a good level of psychic equilibrium beforehand.[59]

But how is the sensible component elaborated at the point where the logical datum of music is grasped? What role does the sensible aspect play in the fruition of music 'with the intellect' (*meta nou*) and in the origin of the finest musical emotion, the *euphrosynē*? The intrapsychic dialogue that is set off in the soul of whomever gathers both the components of music is a complex dialogue, in which the consideration of the voice of the Different remains indispensable: the reception of music as a sensible phenomenon seems an essential fact of the analysis intended to reveal the *logical* component of music. Although here we are speaking of the *analysis* and *discovery* of the intelligent content of music, it should be underlined that the references in the *Timaeus* to a deep way of understanding music seem to concern a *concrete* musical experience. The *euphrosynē* in 80b5–8 does not come from the study of mathematical relationships, but from a listening to music; and the invitation at 47c–e to approach music with the intellect is not an invitation to study the science of harmony, but an indication of how to predispose oneself to undergo the musical experience. In spite of the fact that there is no doubt a link between the manner of understanding the music of the 'wise' (*emphrones*) in the *Timaeus* and the necessary disposition to study the science of harmony well in *Resp*. VII (below, ch. 3), in the *Timaeus* Plato seems to be considering the cognitive and emotive reactions to the *hearing* of music.[60]

Once again we note that the *Timaeus* does not put forward all the difficulties that we find in *Resp*. VII on the value that should be attributed to sensibility, and yet it raises diverse questions on the role that the perceptive component plays in a complex reception of music. Indeed, in this respect, the *Timaeus* turns out to be more interesting than *Resp*. VII, showing the

[59] In the light of these last reflections, the value that *Theaet*. 186b11–c5 assumes in the understanding of the analysis of music in the *Timaeus* (above, pp. 105–7) appears all the more surprising. In the rare capacity that some people possess to reason on the sensations produced by music, we can see an example of the faculty indicated in *Theaet*. 186b11–c5 as the capacity to reflect on the sensations that touch the soul (for a comparison between Plato's suggestion in the *Theaetetus*, apropos of musical and grammatical knowledge, and the reflection on the *analogismata* in 186b11–c5, see Frede 1989, 41). On the other hand, it does not seem possible to draw an easy parallel between the other manner of receiving music outlined in the *Timaeus* and the passive reception of sensations indicated in *Theaet*. 186b11–c5.

[60] Barker 2000, 96; Bobonich 2002, 358.

tension between sensibility and rationality, implicit in the structure of music, to be unresolved, a tension that is resolved in *Resp*. VII with the sacrifice of the sensible component. At *Tim*. 47c–e this tension comes out clearly through the observation that an intellectual content – bearing directly on the perfect movements of psychic harmony – and a sensible content – that urges a hedonistic and sensual reception of music (Dorter 1978, 216) coexist in music in an all but peaceful manner. The possible resolution of this tension, in the musical experience of the 'wise', is the outcome of a delicate and complex psychic task, in which the sensible and intelligible components of music are correctly assessed and understood in their reciprocal relationship. In other words, to disclose that music belongs to the sphere of the 'rational' (*logistikon*) does not mean avoiding the tension that is inherent in music, but fully exposing oneself to it. Unless one takes the route indicated in *Resp*. VII (which is problematic, as we shall see): to obliterate, having made this disclosure, the fact that music also belongs in the sphere of the 'sensible' (*aisthēton*).

A connection between the reflections on music in the *Republic* and those in the *Timaeus* does not emerge only from the comparison between the best musical experience in the *Timaeus* and the analysis of harmonics in *Resp*. VII. There also exists a link between the simplest and most widespread approach to music, contemplated in the later dialogue, and the intervention of music on sensibility in *Resp*. III (Barker 2005, 126–7). But, in general, the sphere of relations between the two dialogues, in respect of music, seems a hostile one, thick with insidious misunderstandings. On this note, the invitation that recurs at the end of the *Timaeus* to make use of gymnastics and music for the cure of the body and the soul is emblematic. One might say that it is the same invitation that characterises the programme of education of sensibility in the *Republic*, if it weren't for the fact that in the *Timaeus* it is preceded and accompanied by reflections on the psychic task of music that cannot be superimposed on those of *Resp*. III. It is obviously a case of the same invitation in the sense that it promotes the development of healthy individuals from an ethical point of view; but it takes on a different value, for the fact that it bears an important acquisition around the natural capacity of music to influence the rational soul, a capacity that is ontologically based.

In the *Timaeus*, on the one hand, the benefits given by music seem to be exploitable by everyone. This is implied by the fact that in 47d music is presented as a gift from the Muses to man and that in 88c, as in *Resp*. III and in the *Laws*, music is paired with gymnastics, in the classical binomial of a basic education. On the other hand, one of the approaches to

music described in the *Timaeus* and the description of the deepest musical emotion presuppose the discovery of the intelligible content of music, a discovery that only scholars of harmonics (*Republic* VII) achieve. We can presume that when Plato entrusts the soul to music for its cure, in the *Timaeus*, he is only apparently doing the same as in other dialogues. He points out the possibility of a more effective therapy, a cure specific to that part of the soul potentially able to follow music to where the fascination of the sounds dissolves in the intelligible beauty of harmony.

My hypothesis is that, in the *Timaeus*, we can see traces of the reflections from the *Republic* on the use of music for the formation of sensibility and rationality, but the attention seems constantly turned to the task that music carries out on the rational soul. Musical care of rationality is conceived in an analogous manner to the care of sensibility: as we have seen in 47c–e and as emerges from the final invitation to use music for the soul (an invitation similar to that of the *Republic* and the *Laws*, where, however, these dialogues contemplate an intervention of music on the sensibility). At the same time, musical therapy of reason is analysed and illustrated with attention to the faculties of the rational apparatus: from here derive the outlines of the two differing reactions to music, reactions that are also characterised by the intensity with which music is undergone as an experience of the rational soul. My impression is that the distinction between a therapy based on exposure to music and one on the comprehension of music, appreciable in the *Republic* in the third and seventh books respectively, is, in the *Timaeus*, transferred to within the cure of rationality. Thus, the brief references to music present in this dialogue manage to hold together the sensibility and rationality of the musical experience, of music and its reception, although certainly without offering the framework of a linear reflection. Greater coherence is possible, as we shall soon see, but only at the price of the sacrifice of music to the silent dialogue of reason.

CHAPTER 3

Musical education of rationality

Proceeding with the analysis of the ways in which music intervenes on rationality, we encounter a part of Plato's reflection on music that is as famous as it is debated: the treatment of harmonic science in *Resp*. VII. The condition in which music, as a science of harmony, is admitted into the curriculum preparatory to dialectic is that it represents a discipline of conversion from sensible to intelligible. In the first part of the chapter we will see that this condition is satisfied if the *mathēmata* train certain psychic processes; and we will see that a study with an empirical stamp represents a risk in the case of the first four disciplines, in particular as regards harmonics' 'kindred' science, astronomy. In the second part, I will concentrate on *Resp*. 530d–531c, where Plato distances himself from both empirical and Pythagorean harmonic science. Here we will endeavour to define the ideal science of harmony and the analysis to which Plato subjects the intelligible and sensible content of music in this context.

HARMONICS BEYOND SOUND

A deep divergence separates the two great reflections on music in the *Republic*: on the one hand, that on *mousikē* in a basic *paideia* for the formation of sensibility, on the other, the reflection on harmonics in a programme of instruction for the future dialectians with the objective of shaping rationality. This divergence is the consequence of the imposing metaphysical scenario raised by the central books of the *Republic*, through the illustration of diverse levels of knowledge and the account of the myth of the cave. It is a scenario that is particularly important for the treatment of the 'highest disciplines' (*megista mathēmata*) propaedeutic to the dialectic, as shown by the fact that the need to individuate these disciplines already appears in 503d–504a, but is only satisfied from 521c onwards, after the illustration of fundamental gnoseological and metaphysical acquisitions. We can appreciate the great difference between the two reflections on music

by the manner in which the *mousikē* of the third book briefly reappears in the seventh book.

Socrates and Glaucon are once again tackling an educative problem, and so it is natural (although perhaps somewhat ingenuous in retrospect) to return to the disciplines successfully employed in the elementary *paideia*. Briefly, and perhaps only to show the limits in this case of disciplines that worked well for another purpose, Plato considers the binomial gymnastics and music (521d–522a). Faced with the ideal need to attract the soul from what it becomes to what it is (521d3–4), the two disciplines do not pass muster. Socrates observes that gymnastics deal with the body – i.e. that which is subject to becoming (521e3–5) – gainsaying the insistence with which he had demonstrated, in the third book, that gymnastics contribute to the harmonic development of the soul. As far as *mousikē* – the 'correlative to gymnastics' – is concerned, Glaucon recalls that it 'educated the Guardians by means of habit and brought by harmony a certain harmoniousness, by rhythm a certain rhythmicity, but not knowledge' (522a3–6). *Mousikē* revealed itself to be a powerful ethical instrument, but it has none of the *mathēma* that is needed (522a8–b1). It seems that music has nothing more to teach the person who, once in possession of ethically correct habits, is endeavouring to understand that which makes those habits virtuous: the Good, supreme metaphysical goal. It would seem that music exhausts its pedagogical potency in basic education; and yet, just a few phrases later, we discover that music appears, in the semblance of harmonic science, among the disciplines selected for the education of future dialecticians (530d–531c).

The aim of underlining that the music being disregarded is the music in the second and third books is quite clear, beginning with Socrates' expression 'music, as previously discussed' (522a2), to move to the synthetic description of the capabilities and limits of that music (522a4–6), and the reference to its verbal component (522a6–8) and its link with gymnastics. The attention given to stating that it is the *mousikē* of the third book and not the entire musical phenomenon, that is inappropriate to educating the future dialecticians, leads us to suppose that music, as a whole, does not exhaust its usefulness in a basic *paideia* and will be recalled, in a certain form, to play an important role in the programme of higher education too. After all, it would be most strange to discover that Plato attributes to music an intrinsic limit of not going beyond sensibility, after the assurance with which he recognises an extrasensible content in the musical phenomenon as we saw in the *Timaeus*. It is precisely this content that guarantees harmonics' inclusion in the *mathēmata*, an inclusion that is denied to the

mousikē of the third book: the content ensures that harmonics possess the fundamental requirement of the disciplines of this educative scheme.[1]

The objective of such an ambitious educative project in *Resp*. VII is to draw the best people out of the cave: bring them to the light (521c1–2), solicit in them a 'conversion' of the soul 'from crepuscule to true day', beyond the metaphor 'from what becomes to what is' (521c6–7). In *Resp*. 527d6–e3 this is how Socrates describes the work of the *mathēmata* in the soul: the purification and rekindling of a certain organ of the soul that has been damaged and blinded by other occupations, the conservation of this organ being more important than that of a thousand eyes (cf. *Symp*. 219a2–4). I will not linger over the presentation of knowledge as a seeing and on the metaphor of the sight of the soul, but it is at least worth noting that, in a context in which the sensible dimension emerges in all its problematic significance, it is actually a sense – albeit the most intellectualistic – to represent the cognitive faculties of the soul (Napolitano Valditara 1994, 27–55). Hence, the trading of the intellective capacities is conceived in terms of a process of catharsis and recovery of an organ of the soul that is functionally invalidated: a prospect that presents some analogies with the cure of the rational soul in *Tim*. 47c–e. But, in the case of the *Republic*, the research of the intellective stimuli necessary to bring about this cure passes through a closed, sometimes harsh, encounter with the sensible dimension.

In 523a Socrates begins to guide Glaucon in the research of a criterion on which to build the higher *paideia*. The point of departure is the observation that, among the sensibles, some do not invite the intellect to an analysis, the judgment obtained by sensation being sufficient, while others solicit a mental investigation, because nothing 'healthy' comes from sensation (523a10–b4). These observations in fact appear after the proposal to

[1] For a comparison between *mousikē* in bks. II–III and harmonics in bk. VII, see Lippman 1964, 74–7. It is also possible to find the project of a higher education in the *Laws*, conceived as a manner of shaping those who were to govern, the night council, the 'anchor' of the State (961c). In 967d4–968a1, the Athenian Stranger upholds the necessity that the council members gather the intellect to be found in the heavens and the necessary preliminary *mathēmata*, and that they investigate their affinity with music and make harmonious use of them for activities and habits of the character. It strikes me that many themes from *Resp*. VII and the *Timaeus* are condensed in this passage with regard to the link between musical, cosmological, ethical and psychic harmony, and with reference to the importance of this link for the philosophical cure of the soul. In the *Laws* there is no elaboration of an educative curriculum for the future governors: the work ends with the observation that 'it is not easy to discover what they should learn nor indeed to become disciple to another who has discovered it' (968d3–4). It will be *Epinomis*, the continuation (whether it is Plato's or not) of the *Laws*, that elaborates the higher *paideia*, showing a substantial uniformity with the programme in the *Republic*: the chosen disciplines being pure arithmetic, geometry, stereometry and harmonics (990c–991b). There is a rejection of music (because it is a mimetic art, 975d) that is then reintegrated in the features of pure harmonics. The importance of the numerical component of music is underlined: 'it is clear that all music also needs movement and sounds regulated by number' (978a2–4). Cf. Mueller 1991, 99–104.

consider arithmetic a discipline adapted to educate the future dialecticians, but the argument developed seems one that can be extended to all the *mathēmata*. The expression used to introduce these observations confirms this hypothesis: Socrates invites Glaucon to take into consideration 'things that lead and those that do not lead' to the objective (523a5–7), with reference to 523a1–2. The attention is turned to mathematics, but in order to ascertain whether it had the right to form part of the educative curriculum, conditions are laid down that will be applicable to the five *mathēmata*. And the analysis of the *mathēmata* treated after arithmetic will confirm that the criterion defined in 523a–524e is operative throughout the educative project.

With the words of 523a10–b4, Socrates does not, as Glaucon initially thinks, refer to the unreliability of the sensations, often deceived in the perception of distant objects or of the illusory effects of chiaroscuro (523b5–6), but to the presence or absence, in the objects of the senses themselves, of the characteristic of provoking an intellective examination. In the tenth book too, but where the attention is directed precisely at the discomposure that the soul is thrown into by illusory effects like chiaroscuro, the use of operations of calculation to shed light on contradictory sensations is invoked (602c10–d9). But the elucidation at 523b–c, in which it is clear that it is not a similar situation to that in the tenth book, provokes an important consideration: the ambiguity to which Socrates refers in *Resp*. VII is not attributable to the perceptive faculty of the subject, but comes from the characteristics of the sensible.[2] Those sensibles that solicit a sensation and its opposite implicate the intellect, the others do not (523b9–c4, 524d2–5): the vision of a finger does not petition the intellect, because the datum of sensation has nothing contradictory about it in itself; while the sensation of how large or small it is, or how hard or soft, obliges the intellect to form a judgment, among contradictory perceptive data, in relation to the notions of largeness, smallness, hardness and softness. Similarly, as far as unity and multiplicity are concerned, the sense of sight can present contradictory data that requires an evaluation of the intellect (523c–525a).

Thus the precise criterion on which the choice of disciplines should be based is found, but it is deeply problematic due to the relationship between perceptive and intellective activity, a theme that runs through the whole treatment of the *mathēmata*. In the passage in question, in particular, Plato seems to link operations that require an intellective intervention to the perceptive dimension: the contradictory nature of the sensations implies a

[2] Franco Repellini 1989, 429.

comparison between sensible data that can only occur on a mental level; similarly, the 'perception' of unity and multiplicity requires an intellectual elaboration. As we have seen these are the very acquisitions that Plato makes in the *Theaetetus* (above, pp. 99–109). Quite rightly in my opinion, Cooper denies the parallelism sustained by Cherniss between *Resp*. 522–5 and *Theaet*. 184–6; noting, among other things, that in the passage in the *Republic* 'judgments of perception' are considered operations that in the *Theaetetus* belong to intellectual activity; what's more, in the *Republic* these perceptive judgments concern elementary sensibles, like hardness and softness, as well as unity and multiplicity, while in the *Theaetetus* the two are distinct.[3]

So, the reflections in *Resp*. 523–4 certainly open the field to numerous problems and reveal a vision of the perceptive process destined to be re-thought, although they put forward a very relevant aspect: that the perceptive datum is the essential point of departure of a process characterised precisely by the passage from sensible to intelligible. It is not by chance that the capacity to set off a similar process to that described in 523–4 will be identified in disciplines that have a problematic and ambiguous relationship, although essential with becoming.

The aspect seen in 523–4 as fundamental in this educative plan – the characteristic of some sensibles to solicit an intellective intervention – shows great complexity when considered next to the single disciplines. Having discarded music and gymnastics, Socrates proposes considering the science of 'number and calculation' (522c6–7): it is possible that this discipline, widespread and used by many other arts (*Phil*. 55e1–3), comes into the disciplines that drive by nature toward intellection, although not generally used as a science that leads to being (523a1–3). From the start of the treatment of the first possible discipline, there is the idea that in the elaboration of the curriculum it is not just the individuation of the right subjects of study that is fundamental, but also outlining the right approach to take. An approach that we might imagine to be very different from the more widespread: no one makes correct use of the science of calculation, a use that brings out its potentials of 'attraction' towards the being. Here we can perhaps register another point of contact with *Tim*. 47c–e: the link between the correct use of mathematics and the capacity of this discipline to lead to an extrasensible dimension recalls the link between the correct use of the science of harmony (of music in general) and the potential of this art to establish a contact between the soul and supersensible harmony.

[3] Cooper 1970, 145–6 *contra* Cherniss 1957, 244 n. 71.

Having made clear, on the basis of the argument in 523–4, that mathematics deserves to enter the curriculum that is propaedeutic to dialectic (524e–525b), Socrates concerns himself with indicating the correct purpose of the study of mathematics in a context of philosophical formation, a purpose that can be summed up in the expression: 'in order to acquire knowledge, not for commerce' (525d2–3). There is obviously a big difference – and it is worth mentioning – between the vulgar use of mathematics, that of tradesmen, and a use that is oriented towards directing the soul from the world of becoming to the world of truth and being (525b11–c6).

The idea that future dialecticians should study relatively common disciplines, but with a different approach, and the idea that this different approach is essential to activate the potential of the disciplines to favour a conversion from becoming to being also clearly emerges in the treatment of successive *mathēmata*. The risk of losing oneself in 'ridiculous'[4] study is also denounced in the case of geometry (527a–b), stereometry (528d7–e1), astronomy (529c–530c) and harmonics (530e–531c). Socrates' preoccupation with showing the necessity that future dialecticians study such disciplines with an awareness of the disciplines' high final aims is clear and understandable, since he is prescribing, to encourage going beyond the sensible horizons in the soul, disciplines commonly used for practical purposes in the dimension of becoming. And yet, it seems to me that in this regard there emerges a circularity similar to that encountered in the *Timaeus* related to the most profitable use of music. It is a question of a circularity that is perhaps inevitable, when there is the suggestion of the possibility of a contact with an extrasensible dimension, starting from sensible data. To make *mathēmata* sciences that favour a distancing from the world of the senses, that reveal the dimension of being, it is necessary to approach such sciences with an intellective capacity that would be the objective of the educative scheme. But what does the empiricist drift that Socrates signals as a danger in the study of the *mathēmata* consist in?

We have seen how the attempt to orient the *mathēmata* towards a going beyond of the sensible dimension even emerges from the treatment of the studies such as mathematics and geometry, disciplines with strongly theoretical content. It is not easy, in such cases, to understand exactly what makes up Socrates' fears; in other words, what we should understand by empiricism in mathematics and geometry. But it seems clear that this doesn't just have to do with the purposes of these studies. The major risk

[4] *Geloiōs* is the adverb used to describe the vulgar approach to geometry (527a6) and to stereometry (528d9) and that of the empiricists in harmonic science (531a4). The adjective *geloion* recurs in the description of the incorrect study of astronomy (529e4, 530a2).

does not seem to be in the study of mathematics or geometry for trade or for building, but in an approach tied to the world of becoming in the theoretical study of these disciplines itself. As far as mathematics is concerned, its identity depends on the way in which it conceives numbers: in a corporeal or abstract manner. It is possible to study mathematics, treating numbers as 'visible or tangible bodies' (525d7–8) and this is the risk that should be avoided, concentrating rather on those numbers 'that can only be conceived by thought, but which it is not possible to treat in any other way' (526a6–7). Mathematics that can promote the conversion from sensible to intelligible are those that work with the non-sensible entities and that draw away so much from the world of becoming as to conceive an indivisible and homogenous unity.[5]

In the treatment of geometry, the sensible component – and hence the risk of an empirical study – seems even more present. The expressions used by geometers to describe their discipline reveal a 'practical' approach (527a6–b1), whereas the principal aim of geometry is knowledge and knowledge of what is always, not what becomes (527a–b). Nevertheless, however 'ridiculous' it may seem, the language of geometers is necessary to elucidate their practical operations of construction, which in turn are necessary so they can move towards the knowledge of the intelligible: so it is in the attitude with which one approaches the discipline that there can and should be a clear distinction between practical geometry of constructions and knowledge of the immutable relationships, through the study of figures.[6]

At the end of the sixth book, illustrating levels of knowledge through the famous metaphor of the divided line, Socrates describes the way the scholars of mathematics and geometry treat the sensible entities as though they were ideal entities: they make use of 'visible figures' (*orōmenois eidesi*), but think of them as images of other realities (510d5–7). The bodies on which mathematicians and geometers work are 'images', used to make out the intelligible realities that can only be grasped with *dianoia* (510e1–511a1). This reflection seems to indicate an ideal manner of exploring the 'dimension of geometry and its kindred arts' (511b1–2), supporting the mental processes that these disciplines prime. The tension that can be felt, in the seventh book, between sensible and intelligible in the study of the sciences here seems solvable through the regular functioning of *dianoia*.

[5] 525d5–526a5; cf. *Phil.* 56d9–e3; Robins 1995, 362.

[6] Robins (1995, 372) notes that these observations can also be extended to the study of solids, hence the third discipline, stereometry. Apropos of Plato's ideas on geometry, cf. Plutarch's testimony (*Marc.* XIV, 9–11) which recounts Plato's criticism of Eudoxus and Archytas who were guilty of addressing the problems of geometry with sensible examples: in such a way they were 'ruining and destroying the good of geometry, that fled from the incorporeal and intelligible to the sensible', cf. also Plut. *Quaest. conv.* VIII, 718e–f.

The reflection on the name to give to the field of the *mathēmata* – although in 533d4–e2 it assumes the contours of an idle terminological inquiry in the presence of considerably more relevant questions – is important for the comprehension of the psychic processes that the intellective and sensible stimuli set off in this educative phase.

The *mathēmata* are presented as auxiliaries and cooperatives in the conversion of the soul (533d3–4), a description that brings to mind the relationship of 'alliance' of music with the soul in *Tim*. 47c–e. It is not correct to use the term 'knowledge' for these disciplines, since knowledge is only the dialectic, but nor does the term 'opinion' do: recalling the distinction in the sixth book between levels of knowledge (509d–511e), they are linked to the field of 'thought' (533d4–7). The education presented here acts on a faculty – *dianoia* – capable of an abstract elaboration of sensible material,[7] keeping it in condition and fortifying it. But the value of this educative scheme also lies in the contents of truth in the studied disciplines (Barker 2005, 118): the *mathēmata* speak to man of an 'authenticity' that he has never encountered in sensible realities. Hence their function is sometimes recognised in the capacity to persuade the mind to complete the passage from becoming to being, sometimes in the faculty to lead to the truth (525b1; 526b2–3; 527b9; 530b4–5).

In 518b–e Plato shows how this higher education does not consist in the gaining of knowledge, but in a conversion of the soul: it is not a case of 'putting sight inside blind eyes', but of helping the soul, already endowed with sight, to look in the right direction. Just as basic education did not aim so much to teach something, as *to make someone become something*, being a formation of sensibility, so this higher education tends not to instil high notions, but to encourage an interior mutation, being a sort of formation of rationality. After all, thought (*dianoia*) – just like 'imagination' (*eikasia*), 'belief' (*pistis*) and 'intellection' (*noēsis*) – is described, in 511d6–e4, as an affection in the soul (*pathēma en tēi psychēi*). To underline that the detected disciplines must be traced back to the field of dianoetic thought (511d2, 533d6: *dianoia*), located half way between opinion and scientific thought, means indicating that their practice requires and trains particular mental processes. It is a question of cognitive mechanisms that in turn consist of a sensible moment and an intelligible one, as emerges from 510–11. Although the accent in this passage is placed on going beyond the corporeal entity – the figure, for example – that is the image of an ideal reality, we reach the interesting conclusion that dianoetic thought needs images.

[7] Chaignet 1887, 221.

The inevitable and congenital implication of the *mathēmata* (and of the mental faculty appointed to take on the study of them, *dianoia*) with the sensible dimension also indicates the principal difference with the highest *mathēma*, dialectic, and with the most subtle mental process, the intellective. In 511b–d it is quite clear that 'intellection' (*noēsis*) moves among forms, completely ignoring every sensible datum (511c1–2); less clear is the procedure that characterises the mental act of dianoetic thought. It is true that someone who (*correctly*) contemplates the objects of the *mathēmata* necessarily does it with thought and not with the senses, but proceeding by hypotheses, without ascending to the principles (511c3–d2). The idea that the sensible dimension is explicitly excluded from both procedures does not hide the fact that it cannot really be eliminated from the *dianoetic* procedure, because it is intrinsically connected to the mechanisms with which *dianoia* works. One can say that the geometers and scholars of other *mathēmata*, even if they manage to use thought correctly and to do without the senses, make use of a mental faculty that nonetheless maintains a strict rapport with the senses. The connection between intellective stimuli and the activation of a mental faculty is clearly outlined in this passage by the observation that the four mental processes – *noēsis*, *dianoia*, *pistis* and *eikasia* – participate with as much clarity as there is truth in the objects that they are contemplating (511e2–4): that part of being and intelligible that is the object of contemplation of dialectic science is clearer than the part contemplated by the so-called arts (511c4–6). The use of the notion of clarity, to indicate the intelligibility of contemplated objects, is part of the metaphor, widely used in *Resp*. VII, of cognitive activity as the sight of the best faculties of the soul.

In the seventh book the relationship between *mathēmata* and dialectic is presented several times by means of the musical metaphor of the prelude and the song. In a context in which music is only present in the intelligible semblance of harmony, the supreme science is defined as 'song itself' (531d8, 532a1) and the *mathēmata*, again in a musical term, 'preludes' (531d8: *prooimia*), or as a whole 'prelude' (531d7, 532d7). It is not the 'musical discourse' of the five sciences that is the bearer of the deepest ontological contents, but that of dialectic. The *mathēmata* gather 'something of the being' (533b7), they dream it (533b8–c1: *oneirōttousi men peri to on*), but they do not see it clearly.[8] Where to see means to grasp by the use of reason, a blurred vision and an oneiric perception of being can only represent an

[8] In the same passage, Socrates, drawing attention to the limits of the disciplines that are not dialectic also considers the 'arts' (*technai*) other than those appearing in the propaedeutic curriculum to dialectic, noting that they generally have to do either with 'human opinions and desires, or processes

obscured comprehension of the intelligible. The decisive and definitive separation from the senses – that which assures the correct functioning of another *perceptive process*: the soul's sight – occurs with dialectic (537d5–7), which is able to close the body's eyes in order to open those of the *psychē*. And yet it is the dimension of the propaedeutic sciences that indicates this route, although the process set off is one of tension towards the total liberation from the senses and not a conquest, and it occurs through a knotty and ambiguous encounter with the dimension that must be surpassed.

In the treatment of the last two *mathēmata* – astronomy and harmonic science – the complexity of matching up with the sensible dimension emerges in all its precision. In the study of these disciplines – disciplines that, under this profile too, maintain that relation of 'kin' later defined by Socrates with regard to other aspects (530d6–10) – the perceptive component plays quite a relevant role, so that to maintain the speculative rigour that is necessary in the study of the *mathēmata* seems an even more complex undertaking.[9] Glaucon's ingenuous remark, which opens the reflection on astronomy, already gives an idea of the tension between the sensible and intellective components that will inform the following analysis. Convinced that he is expressing praise for the discipline, Glaucon says that astronomy is without doubt adapted to turn the soul upwards and to guide it from this world to the one above (528e6–529a2). The possibility of an overlapping between the physical and the psychic operations of seeing and turning upwards can be understood as a sign of the oscillation between sensible and intelligible that characterises the study of astronomy. Glaucon's observation at 528e6–529a2 is less ridiculous than it may appear at a rapid reading: he induces Socrates to clarify the metaphor, which he used several times in the course of the reflection on the *mathēmata*, of knowledge as a lifting of the soul (521c7, 525d5–6, 527b10–11), emptying it of any reference to a physical space. For the soul to rise or descend does not mean that it moves with respect to spatial coordinates, but with respect to ontological contents. The only discipline that urges the soul to look up is that which concerns

of generation and composition, or they are all directed to the care of natural and composed things' (533b3–6). Among these arts it is legitimate to see the music and gymnastics of the second and third books. On the relationship between *mathēmata* and the dialectic, see Annas 1981, 276–93.

9 Cf. Arist. *An. post.* 87a30–5, according to which, the knowledge of that which does not inhere in a substrate is more precise than one that inheres in a substrate, as for example arithmetic with respect to harmonic science. On the difference between arithmetic, geometry and stereometry on the one hand and astronomy and harmonics on the other, cf. Mueller 2005, 105–14. Barbera (1981, 395) underlines how the problem of the role of mathematics in the educative scheme emerges above all in the treatment of astronomy and harmonic science, with respect to which it is a question of understanding how mathematical such disciplines have to be.

being and the invisible (529b3–5);[10] and it is useless to assume one position with the body rather than another, to look up or down, if one assumes the sensible to be the object of study: the soul will not rise because knowledge cannot be about the sensible (529b5–c3).

Now, it is clear that to turn oneself upwards does not ensure knowledge, if we take the idea that to look upwards is to know in the sense of contemplating the decoration of a ceiling and we think that an eventual knowledge deriving from this operation can be had through intellection and not through the eyes (529a10–b3). Nevertheless, it is not only in this manner that the question should be understood. Even an astronomer looking up might involve a mere observation of sensible data, and as such will not set off in the soul the process of comprehension of the intelligible that is knowledge. With Socrates' reflection in 529b3–c3 we are introduced into a climate of strong tension towards the intelligible, which will be among the clearest, and at the same time the most difficult theme, in the treatment of astronomy and subsequently harmonic science.

Certainly, it seems strange to consider the science of the heavens, as the fourth discipline in a curriculum of formation of the intellective faculty, by suggesting that looking up serves no purpose in the acquisition of knowledge if one only looks at the sensible. To prescribe astronomy to the future dialecticians, recognising in it the faculty of 'opening up to knowledge', means admitting that the operation of the contemplation of sensible objects such as the stars, conducted in a certain *manner*, is useful for the purposes of knowledge. And yet, in the treatment of astronomy, the belittlement of the phenomenon will be so evident as to result in an urgent invitation to completely go beyond the sensible data in a philosophical study of the heavens. It is also evident in these remarks that, treating astronomy, the risk of slipping towards empirical positions seems greater, and in some respects different, compared to that evaluated in the analysis of arithmetic and geometry.[11] The role that the phenomenal datum (the visible number or figure) assumes in the study of mathematical disciplines is not

[10] The use of the metaphor of the soul's sight, in a context in which the importance of physical looking is denied, produces paradoxical statements, in which the discipline that 'makes the soul look up' (529b4: *anō poioun psychē blepein*) is that of 'that which is not visible' (529b5: *to aoraton*). A further interesting use of the metaphor of psychic sight, in relation to the body's sight, appears in *Phaed.* 99e1–4, where Socrates confesses to have feared becoming 'blind' in his soul as a result of looking at things with his eyes and trying to understand them with the senses.

[11] Illustrating the necessity to find the right relationship between the use of the intellect and the ear in the study of music, Aristoxenus (*El. harm.* 42, 8–43, 3) notes the difference that subsists in the use of the perceptive processes in two disciplines like geometry and music: in the first, exercising the perceptive faculty is not essential, while in the second 'the precision of perception' (*hē tēs aisthēseōs akribeia*) is fundamental.

the same as that it (the celestial bodies) assumes in the science of astronomy which is, by its nature, more closely tied to the phenomenal dimension.

If astronomy is the observation of sensible objects and their study does not produce knowledge, then the philosophical destiny of the science of the heavens depends on the *manner* in which the looking up is carried out. The observations on the significance of raising the soul produced by astronomy are connected to a criticism made of a certain manner of conceiving this discipline. The polemic is directed to those who 'raise it to philosophy', considering it rather in a manner that drives the gaze down (529a6–7). It is presumably a case of the most widespread approach to the study of the heavens (529c4–6), but it is incorrect because it cannot define the right relationship that such a discipline maintains with philosophy. For the study of astronomy to assist the proposed educative ends, it is necessary to move away from the current approach. As in his treatment of arithmetic and geometry, prescribing a discipline that is already very widespread, Socrates places the stress on the approach to be adopted. One should direct oneself to the 'decorations of the heavens', contemplate and study them, in the awareness that, although perfect in sensible dimension, they are greatly inferior to the real ones: objects that can be grasped by reason and thought, not by sight (529c7–d5). The 'friezes' of the sky must act as 'patterns' (*paradeigmasi*) to gather those other objects (529d7–8). The relationship between model and original is marked here, as in other contexts in Plato's work, by an ontological distance mapped out by values of truth. There exist true contents of astronomy, to which sensible objects only allude as 'paradigms': they are the 'true objects' (529d1: *tōn de alēthinōn*), the 'true number' (529d2–3: *en tō alēthinō arithmō*) and the 'true figures' (529d3: *pasi tois alēthesi schēmasi*), according to which the celestial movements occur.

Faced with the movements of the stars the astronomer must behave in an analogous manner to an expert in geometry when observing designs drawn by Daedalus or others: while recognising their beauty, he 'would hold it ridiculous to seriously examine them for the purpose of finding in them, the true equal, true double or the truth of any other proportion'. The astral figures must have the same value as the geometric figures: that of paradigms that allude to the true contents of the astronomical and geometric sciences.[12] To begin from the phenomena of astronomy to find

[12] 529d7–530a1. Perhaps it is not by chance that it is precisely from the field of geometry that Socrates draws an example to illustrate the correct attitude needed when faced with the empirical evidence of astronomy: the two disciplines are in some way connected; astronomy, understood in the correct sense, being the study of solids in movement (cf. 528a7–b1, d7–e1). See Robins 1995, 373–7, who underlines the value of this definition of astronomy and states that the distinction between the

truth means not attributing to them an ontological depth that they do not have, acknowledging in them the absence of stability and immutability (530a4–b4). But, in conclusion, the discourse on the science of the heavens abruptly turns in the direction of a complete devaluation of the sensible data and seems to raise doubts about the operation of starting out from phenomena. In order to study astronomy one needs to use the 'problems' and dismiss the celestial bodies (530b6–7: *Problēmasin ara, ēn d'egō, chrōmenoi hōsper geōmetrian houtō kai astronomian metimen, ta d'en tōi ouranōi easomen*): this is what Socrates maintains, almost to the point of closing the analysis of astronomy with the same provocative tone that he used at the beginning, when saying that to turn one's gaze upwards is not knowledge if one only scrutinises the phenomena (529a9–c3). Concentrating on the 'problems' and neglecting the empirical data is put forward as a necessary condition to derive from astronomy the beneficial effect on the soul that all the *mathēmata* should bring: a completely aprioristic approach seems the only one possible to obtain the reactivation of the intelligent element of the soul from the study of the heavens (530b6–c1).

Apart from the difficulty of understanding the value that should be attributed to the term 'problems' and consequently the difficulty of grasping the type of study suggested by Plato (similar difficulties will emerge with regard to harmonics), opting for an approach that is completely free of empirical data seems obvious. But is this really the orientation suggested for the philosophical study of the heavens? Let us attempt to analyse this conclusive statement – which might sound like a clear indication of method – in the context of the entire analysis of astronomy. It is not only the most widespread approach that differentiates itself from such an 'extreme rationalism' in astronomy – as Glaucon swiftly notes, who sees the study suggested by Socrates as something considerably more complex with respect to the usual manner of treating astronomy (530c2–3). The approach outlined by Socrates' observations in the entire treatment of astral science is also differentiated from it. The conception of the visible stars as paradigms of true astronomical objects, illustrated in 529c–530b, recognises an important role for the sensibles, at the same time in which, confining them in the category of 'model', it denies them a complete ontological dignity. The value of the visible stars is precisely in their being 'paradigms' of the true: to understand this aspect and base the study of astronomy on it means studying astronomy correctly. This astronomy has

observable movements in the heavens and the true movements is in reality a distinction between diagrams and mathematics of solids in movement. For the idea that astronomy prescribed by Plato in *Resp*. VII is kinematic, cf. Mourelatos 1980; Franco Repellini 1989, 435.

the headway in celestial phenomena, which are relevant and important although here the accent is above all placed on the movement of separation from the sensible to the ideal.

Furthermore, setting out from the sensible is an aspect that characterises as much the other *mathēmata* as the faculty exercised by them, and seems almost to represent an indispensable element in the process of formation described here. Hence, going beyond the empirical data does not seem a requirement to be satisfied once and for all and as a preliminary to the study of the stars. Rather, it is a necessity that needs to be faced from time to time, as part of the training set out by the study of astronomy consists precisely in the operation of going beyond the sensible content. So, it is not a case of working with the problems of astronomy, dismissing the stars, but of dealing with the stars so as to dismiss them when problems can be seen.[13] Furthermore, to dismiss the stars in order to address the problems could have a double significance in relation to the phase of study in which the astronomer finds himself: he must manage first to go beyond the phenomenological data, going from the trajectories of the visible stars to diagrams; but, at this point, he must manage to definitively pass over the sensible dimension, considering the diagrams in their own right, without further recourse to the phenomena to measure their correctness (Franco Repellini 1989, 434–5). The advice to dismiss the stars perhaps refers in a more decided manner to this second phase, in which even rationalistic astronomy might easily commit the error of remaining tied to the sensible.

This consideration of phenomenological data not only tallies with the psychological and cognitive dynamics that characterise this educative scheme, but also with the reflections that Plato formulates elsewhere in the study of astronomy. In *Tim*. 40c3–d3 we find the idea that to treat the 'dances of the stars' 'using visible models would be a futile undertaking' (*aneu di'opseōs toutōn au tōn mimēmatōn mataios an eiē ponos*). The hypothesis that here Plato is referring to the use of an armillary sphere, perhaps utilised at the Academy, to study celestial movements reveals another aspect with which to evaluate the question of copy and original raised in *Resp*. 529c–530b with regard to astronomy:[14] to make the study of the stars easier it might also be useful to turn to 'representations of representations'.

[13] Cf. Vlastos' interpretation (1980), which underlines how *ta d'en tōi ouranōi easomen* does not mean 'ban', 'eliminate' or 'forget altogether', but to 'dismiss' celestial phenomena as objects of knowledge. Cf. also Dicks 1970, 234 n. 139. For Bulmer-Thomas (1984) the expression *ta d'en tōi ouranōi easomen* does not indicate that here Plato has in mind 'a purely speculative astronomy', but it is an invitation to concentrate on a mathematical explanation of celestial movements and 'drop the grouping of stars into fanciful figures'.

[14] Cornford 1937, 74; Franco Repellini 1989, 433 regarding *Resp*. VII.

Certainly, we must consider that the reference to sight and representations in *Tim.* 40c–d serves Timaeus precisely so that he can avoid going deeper into a reflection on questions relative to the study of astronomy. Thus, this raises doubts about reading this passage as a positive indication of method. However, it seems to me that the value accorded to the perceptive dimension is interesting. The importance of the image and the perceptive activity (40d2: *di'opseōs*) is asserted with clarity; with the clarity that is lacking in *Resp*. VII where, however, there is an intimation of the value that sensible data assumes for dianoetic thought.

Hence, what Plato has in mind for the future dialecticians is not aprioristic astronomy, freed once and for all from phenomena. And yet, in *Resp*. VII, he 'allows his polemical stance to run away with him' (Lloyd 1991, 336) and the risk of empiricist results leads him to issue the invitation to dismiss the stars and dedicate oneself to the problems. The context in which such decided statements are expressed – i.e. the hunt for an education that instils the habit of moving away from phenomena – certainly explains the large part of the extremism that Plato shows, in particular in the treatment of disciplines such as astronomy and harmonics. Awareness of the risk that comes with the prescription of the two last disciplines is strong as are the countermeasures that Plato adopts to avoid the danger. But the notable sensible implications of astronomy and harmonics also make up a precious requirement in an educative programme whose efficacy depends precisely on a constant matching up to the sensible and intelligible and in the research of an equilibrium between the two dimensions. Prescribing here a complete liberation from sensible data, Plato cannot but be aware and satisfied that this is not definitively possible.

MOVING TOWARDS A SCIENCE OF HARMONY

As we have said, one can also see in this deep implantation in the sensible a manifestation of the relationship between astronomy and harmonics that Socrates points out while passing from one to another. It is the observation that different types of movement exist which suggests the name of the fifth discipline: the eyes seem made for the contemplation of circular motion (that of the stars), the ears conceived to appreciate harmonic movement.[15]

[15] Moving from astronomy to harmonics, Socrates remarks on the link between the two disciplines in a similar manner to that shown in the passage from geometry to stereometry (528d–e). There it was a question of a thorough examination of dimension, moving from that of planes (studied in geometry) to that of solids (studied in stereometry). In this case, it is an in-depth examination of movement, directing attention first to the circular movement of the planets, then to the harmonic

Hence, the Pythagoreans are right to define them as kindred sciences (530c8–d9). The reference to the Pythagoreans – the only explicit one in Plato's work – recalls fragment 1 of Archytas, in which the relationship between astronomy, geometry, arithmetic and music is asserted.[16] Nicomachus – one of the two principle sources for this fragment – associates this relationship not to movement, as Plato does in the *Republic*, but to the fact that such disciplines have as their object the two original forms of being: multitude (*plēthos*) and magnitude (*megethos*), treated by Nicomachus prior to the mention of Archytas (*Ar*. 4, 20 ff.). Arithmetic and music would be akin in terms of multitude, geometry and astronomy on a basis of magnitude; furthermore arithmetic and geometry would be kindred because they concern fixed objects, music and astronomy because they concern mobile objects. However, there is good reason to doubt the authenticity of the explanation and to consider it the work of Nicomachus.[17]

As it is easy to note, the kindred disciplines in fragment 1 of Archytas – apart from stereometry – coincide with the *mathēmata* in *Resp*. VII. Although an explicit reference to Pythagoreanism appears only with respect to astronomy and harmonics, one can hypothesise an influence of the reflections on mathematical sciences developed in Pythagoreanism apropos the entire treatment in *Resp*. VII. The theme itself of a connection between the *mathēmata* – a theme that Plato seems to include in the same terms as Archytas only with reference to astronomy and harmonics – is present concerning all the sciences: in 531c9–d4 Socrates talks of the recognition of community (*koinōnia*), kindred relationship (*syngeneia*) and affinity (*oikeiotēs*) between the disciplines as a fundamental operation to make the educative scheme effective. Hence, a rapport of kinship (an aspect that

movement of sound. As we shall see, astronomy and harmonics are conceived as expressions of a mathematical ideal of movement (Barker 1989a, 53). Cf. Timpanaro Cardini (1958–64, vol. II, 361) who notes how, in *Resp*. 530d7, Plato uses the term *phora* for harmonic movement, a term commonly applied to the movement of the stars.

[16] The authenticity of Archytas 47 B1, on which Burkert advances considerable doubts (1972, 379 n. 46), is found to be probable by Bowen 1982 and Huffman 1985; 2005, 112–14.

[17] The principal sources for fr. 1 of Archytas are Porphyry (*In Harm*. 55, 27–58, 4) and Nicomachus (*Ar*. 6, 8–7, 6), and they differ on important points. Among these is indeed the explanation of the kinship, present in Nicomachus (*Ar*. 7, 2–4: *peri gar adelphea ta tou ontos prōtista duo eidea tan anastrophan echei*) and absent in Porphyry. Barker (1989a, 40 n. 44), who does not consider the inauthenticity of Nicomachus' explanation to be proven, suggests we see the visible and audible in the two forms (*eidē*) of being. Huffman (1985, 345–6; 2005, 114–25, 154–5) thinks that the explanation is the work of Nicomachus, who, in this way, would link Archytas' thesis to his preceding discussion on the two forms of being. In general, Huffman suggests a reading of the two testimonies in relation to the context in which they appear and to the intentions of Porphyry and Nicomachus, finding the former to be reliable, and the latter to be substantially less so.

is important enough to require a clear recognition) binds together all the *mathēmata*, just as in fragment 1 of Archytas.[18]

And yet, precisely because the Pythagorean reflection is in the background of the entire treatment of the *mathēmata*,[19] it is all the more noticeable that Plato makes explicit reference to the Pythagoreans only in the passage from astronomy to harmonics, and that he only attributes the Pythagorean quality of kin to these two disciplines, in this place. The impression is that Plato feels the need to evoke the Pythagorean reflection only as he is about to treat harmonic science, a science in which, certainly, Pythagorean research constitutes an indisputable point of reference. On the other hand, immediately after making reference to the Pythagoreans, Socrates clearly asserts his intention to take their reflections on such arguments into consideration, given the complexity of the question. But the need, in this study, to keep to an exclusively Platonic principle is immediately voiced (530e1–3). So, on the one hand the Pythagorean positions are taken into account, while on the other there is affirmation of the criterion on which the reflection on the sciences will be conducted. Thus, already in 530e1–3, it is possible to catch a glimpse of signs of an approach of attentive deliberation and condemnation that Plato will assume with respect to Pythagorean research in the treatment of harmonic science.[20]

The principle that will be protected at any cost in the comparison with Pythagorean theories on harmonics is the same as that noted a little earlier with regard to astronomy: the future dialecticians should not dedicate themselves to a study 'without purpose',[21] unable to arrive at the place where everything ought to arrive (530e5–7). The ideal outlet of the scientific studies here proposed is the domain of the Good that will touch on the dialectic to explore; but the awareness of the purpose to be arrived at is fundamental in the elaboration and the interpretation of the curriculum.

[18] Cf. Bowen 1982, 84. In *Resp*. 511b1–2 – in the passage that we have cited regarding an ideal study of geometry and other sciences (above, p. 120) – there is a reference made to a kindred relationship. The author of the *Epinomis* (991d–992a) also reflects on the unity of *mathēmata*, in a passage in which it is placed in relation to a bond that binds together all the phenomena: the discovery that awaits whoever has dedicated himself correctly to the study of the selected disciplines is that 'a single natural tie unites all the phenomena' (991e1–992a3). The knowledge that derives from the study of the science of harmony should be integrated, by the future dialectician, in a whole that embraces the acquisitions of all the *mathēmata* and shows their connections. On the role that harmony carries out in the recognition of the unity of the *mathēmata*, see Robins 1995, 388.

[19] Cf. Huffman (2005, 84) for the idea that criticism made of the Pythagoreans does not only concern the science of harmony, but all the mathematical sciences.

[20] See Di Benedetto (2003, 14–15) who notes how in the passage, contemporaneously the 'debito' and the distance separating Plato from Pythagoreanism emerge 'con drammatica evidenza'.

[21] I believe that it is more appropriate to understand *ateles* to the letter as 'without purpose', rather than 'imperfect', cf. Shorey 1963, 190 n. *c*.

Perhaps it is not by chance that Plato feels the need to reaffirm the real (and exclusively Platonic) objective of all the *mathēmata*, just before facing an inescapable, but quite complex, engagement with the Pythagoreans on the subject of the science of harmony: given certain assumptions, a (difficult) distancing from Pythagoreanism will reveal itself to be inevitable.

Socrates accuses the Pythagoreans of dedicating themselves to a futile enterprise like astronomers who have a bad approach to their discipline: of 'measuring audible concords and sounds one with another' (530e7–531a3). Glaucon retorts, describing the work of scholars who are not those that Socrates has in mind. The encounter-clash with Pythagoreanism is deferred (531b7–c4) by Glaucon's misunderstanding that, far from simply being a misapprehension, represents an interesting step forward in the treatment of harmonic science (Meriani 2003, 89–90). By and large, it seems to me that in the whole piece on harmonics some interesting information emerges in the dramatic construction of the passage. First of all, Glaucon's misunderstanding extends the scenario of Platonic criticism beyond Pythagoreanism, to include an extremely empirical approach as well. In such a way, the passage provides an interesting and valuable testimony – all the more precious for being isolated and conducted by a 'hostile witness' (Lloyd 1987, 243) – on the principal orientations of the study of harmonic science in the fifth and fourth centuries.[22] Furthermore, introducing a criticism of the empirical approach, when he is about to criticise the 'empiricism' of the Pythagoreans, Plato creates the conditions that provide a precise focus on the weight of criticism that he makes of Pythagoreanism, through an analysis of the differences between the two trends and the substantially different treatment that he reserves for them in this passage (Barker 1978, 340). Hence, it is interesting to note the manner in which Glaucon's misunderstanding is inserted into the dramatic development of the passage or, if we put ourselves within this scenario, to ask how Glaucon could fail to interpret Socrates' words. Precipitously, but with conviction, Glaucon ridicules the empiricists without being troubled by the slightest doubt as

[22] Cf. Frank 1923, 153. The two trends are the Pythagorean's mathematical tendency and that of the empirical harmonicists. But the testimonial value of *Resp*. 530a–c must be considered in relationship to the philosophical argument that inevitably conditions the description of the two approaches. On the double aspect – speculative and perceptive – of harmonic science, cf. Arist. *An. post*. 79a1–6: 'the science of harmony is as much a science of mathematics, as one based on hearing'. A reference to the science of harmony based on arithmetic (hence of Pythagorean stamp) is, however, present in *Top*. 107a11–15: Aristotle talks about the theory of the pitch of a sound being related to the speed, linking them to the 'harmonicists with mathematical approach' (*hoi kata tous arithmous harmonikoi*). Cf. also *Metaph*. 997b21: *hē en tois mathēmasin harmonikē*. Theophrastus (716, 17–18) distinguishes the two trends on the basis of the fact that the harmonicists judge by relying on perception (Barker 1977). On these passages and the difference of the two approaches, see Barker 2007.

to the identity of the musicians to whom Socrates is referring. Perhaps we can read in his reaction the echo of a tendency that was widespread in Plato's time, even among people who had a good knowledge of music (we remember that Glaucon is rightly given the title of *mousikos* in the *Republic*): the tendency to mix up the physiognomy and work of different theoreticians within the same criticism.[23]

The picture of the empiricists that emerges from *Resp*. 531a–b is ironic and mocking: one might even say caricatured. Plato's goal in this criticism is probably Aristoxenus' 'so-called *harmonikoi*' who are dedicated exclusively to the enharmonic genus, characterised by the strong presence of micro-intervals.[24] In *Resp*. VII the scholars are immortalised in the 'ridiculous' (531a4) act of straining their ears to hear the smallest perceptible interval for a unit of measurement:[25] they call some things 'close-packed' and endeavour to seize sounds as one might try to hunt for neighbours' voices (531a4–6). The thickening of sound suggested by the expression *pyknōmat'atta* shows how the scholars' empirical job is carried out in a scenario that is dense with sounds, in which it would be a highly complex undertaking to trace the differences of pitch.[26] And the difficulty soon reveals itself to be impossibility: it is impossible to arrive at definite results, through a sensible inquiry, exposed to the risks of any perceptive evaluation. In the research of the minimal interval, a division occurs within the empirical school between those who 'maintain that they can make out another sound in the middle and that it is the smallest interval for measurement' and those who answer that it is the same sound (531a6–8). The schism derives directly from these scholars' approach, which relies on perception,

[23] Moutsopoulos 1959, 49 n. 17, 55, 57.

[24] Aristox. *El. harm*. 6, 6–9: 'It appears that those who previously studied harmonics really only wanted to be "Harmonicists", because they only dealt with the enharmonic genus, and never concerned themselves with other genera.' On the 'so-called *harmonikoi*', see Wallace (1995, 27–9, 32) who is inclined to consider them a specific group of theoreticians (even though he prefers to speak of movement rather than school); Barker (2007, 33–104), who does not think that they can be grouped in one school or 'organised tradition', advances the hypothesis that the context from which the science of harmony of an empirical approach is born and develops is that of concrete musical practice.

[25] It concerns the quarter of a tone or enharmonic *diesis*. On the *diesis* as a unit of measurement in music, cf. Arist. *Metaph*. 1016b18–24, 1053a12–13; *An. post*. 84b37–85a1. It is interesting to note that in the reflections of a later scholar, Bacchio (307, 20–4), the operation of perception of intervals is considered an intellectual fact more than an auditory one.

[26] In technical musical language *pyknon* indicates that part of the tetrachord in which the sum of the two intervals is less than the third, something that only occurs in enharmonic and chromatic tetrachords, cf. Aristox. *El. harm*. 31, 3–5; 62, 14–18. It is probable that *pyknōmata* in *Resp*. 531a4 is a reference to *katapyknosis,* considered by Aristoxenus one of the most characteristic practices in the work of the *harmonikoi* (*El. harm*. 12, 8–12; cf. Barker 1989a, 55 n. 3; 2007, 42).

a criterion of evaluation that is not objective. It is precisely on the consideration of this extreme empiricism that Glaucon's speech is concluded: both the currents produced by the dispute on the sensations 'put the ears before the intellect' (531a8–b1: *amphoteroi ōta tou nou prostēsamenoi*).

Socrates' following remark comes as a confirmation of the fact that Glaucon's misunderstanding serves to illustrate and condemn the empirical approach to music. In clarifying that he didn't intend to talk of the empiricists, Socrates increases the derision, making his own personal contribution to the grotesque description of questionable empirical practices. In a highly effective figurative gambit, Socrates makes use of a metaphor drawn from the field of legal examination: the empiricists become 'those good people who torment and torture the strings, stretching them over pegs' (531b2–4). In technical musical jargon the *kollopes* are the pegs used to increase or reduce the tension on stringed instruments; but, like the verb *strebloō* (cf. *Resp*. 361e4), they bring to mind practices of torture.[27] The metaphor is clever in its crudity and figurative efficacy, characteristics that recall the brutality inflicted on music by the exponents of New Music in Pherecrates' *Chiron*. But Socrates gives the discourse on the empiricists back its role of *excursus* and avoids elaborating the image of torture, limiting himself to adding a final (although very incisive) stroke. The image is coloured by blows to the strings and accusations of denying and lying, accusations directed at the strings by the torturers (531b4–6). Again the ambiguity of terms, which can be linked as much to the field of an interrogation as to that of musical experimentation, makes it a powerful image. The term *plēgē* indicates a blow, but it also has a precise meaning in music and in the theories on the diffusion and perception of sound (below, pp. 155–62); *exarnēsis* and *alazoneia* indicate respectively the action of denying and of lying, but perhaps also allude to the behaviour of the strings in the empiricists' operations.

Beyond the metaphor of interrogation with torture, the passage provides some interesting information with regard to these operations. Firstly, it seems clear that the work that Plato attributes to these theorists is concentrated on pitch, made to vary by intervening on the strings' tension, as the image of stretching over pegs would suggest. The constant reference to strings in the plural and to the operation of altering the tension exclude the possibility that Plato is thinking about an experiment with a monochord: indeed, such an instrument works by dividing its one string through mobile bridges, and not raising or lowering the tension. The empiricists in

[27] Barker 1989a, 56 n. 4; Meriani 2003, 111.

Resp. VII probably use common stringed instruments, such as the lyre or *kithara*, for their experiments (Barker 1989a, 56 n. 4). Since the objective of their research is the minimal perceptible interval, one might presume that the work consists of changing the tension of a string and the comparison with the sounds produced by a string kept at a constant tension, with the aim of arriving at the definition of the smallest interval that the ear can perceive.[28] In a context of experimentation of the type, accusations that the theorists address to the strings – negation and imposture – may allude to the lack of or false production of a *specific* sound, whereas in reality it is the perception of the accuser that is defective.[29] In the telling development of the metaphor, the empirical approach to the study of harmonic science, manifestly incorrect according to Plato, is presented as a sort of unjust justice; the strings, guilty of not making the sound that the ear of the accuser expects or can perceive, are the symbol of this justice.

Aristoxenus' considerations on the *harmonikoi* allow us to deepen our knowledge of experimental practices, in particular to understand the use of specific tools in the study of the science of harmony. To demonstrate the incorrect harmonicist's habit of concentrating exclusively on the enharmonic genus, Aristoxenus affirms that in harmonics there are only *diagrammiata* of the enharmonic scales, but not the diatonic or chromatic (*El. harm*. 6, 9–12). The diagrams are the expedients employed by the empiricists to measure intervals: lines on which sound is projected and visualised.[30]

Now, we remember that the treatment of the *mathēmata* touches several times on the question of the role to attribute to the sensible representation in the study of the sciences. In particular, apropos astronomy we note that Plato seems aware as much of the risks as the importance of the use of sensible tools. In the case of the study of harmony, we can easily intuit the difficulty of working on an impalpable material such as sound, and we comprehend the help that can be provided by an instrument that makes sound the object of sight as well. The criticism of the empiricists in *Resp*. VII does not explicitly convey the use of diagrams, but the idea that the theme of the 'sight of sound' is in the background of the criticism does not seem to me entirely unrealistic. After all, the comparison between

[28] Lloyd 1987, 243 n. 106; Meriani 2003, 109–10.

[29] I agree with Meriani (2003, 111) that, as the empiricists concentrated on the pitch of sounds and not their intensity or volume, it would not be correct to interpret the terms *exarnēseōs* and *alazoneias* as indicating a lack of or excessive production of sound.

[30] Cf. Bacch. 305, 18–20: 'We use the diagram so that what is difficult to gather through hearing is visible to the eyes of who is learning.' The term *diastēma*, that indicates the interval between two sounds, derives from a spatial conception of sound, indicating the distance between two points in space (Rocconi 1999, 95; Meriani 2003, 107–8).

empiricism and Pythagoreanism in *Resp*. VII is also a comparison between two different manners of representing sound. The concept of a dimension of sound which is at the basis of the use of expedients like the diagram (a concept that we could define as geometrical–spatial) sets itself against the Pythagorean concept that translates sound into the numerical language of arithmetic.[31] It would be appropriate to take into consideration the figurative aspect of this comparison in a context – that of the training of cognitive mechanisms of the *dianoia* – in which the aspect of the sensible representation plays such a delicate role.

Apart from the use of diagrams, the empirical approach draws scornful criticism from Plato for its compromising involvement with the sensible: it is a harmonic science that is based on the ears (531a5: *ta ōta*, 531a6: *katakouein*, 531b1: *ōta*) and the strings (531b2: *tais chordais*, 531b6: *chordōn*). In *Phaedrus* 268d–e there recurs the combination of the figure of a *harmonikos* and the focus of attention exclusively turned to the strings and their responses.[32] Socrates imagines the scene of an encounter between a *mousikos* and 'someone who believes he is a *harmonikos*'[33] by virtue of the fact that 'he knows, by chance, how to make a string sound higher or lower' (268d8–e1). Thus, the person who defines himself as a *harmonikos* has the technical knowledge of a tuner; and the expression 'he knows, by chance' (*tynchanei epistamenos*) seems to indicate that it is not even a systematic knowledge. The *mousikos* specifies that such knowledge would certainly be necessary if one wants to become a *harmonikos*, but it constitutes only the essential notions to take on the study of harmony, not harmony itself (268e5–6; f. *Phil*. 17c–e). This passage in the *Phaedrus* can be linked to

[31] Meriani 2003, 108; Rocconi 1998, 350; 1999.

[32] *PHibeh* 13 also underlines the *harmonikoi's* interest in strings; the *harmonikoi* are presented there as simple instrumentalists who take on the airs of theorists. It is interesting to note that here the *harmonikoi* are also credited with the conviction in the ethical powers of music and the elaboration of a theory of musical *ēthos*, cf. Wallace 1995, 32–5. The emphasis on stringed instruments represents a difference with respect to the picture of scholars of harmony set out by Aristoxenus, which refers to the *harmonikoi*'s predilection for the *aulos*. For a comparison between *PHibeh* 13 and *Phaedr*. 268d–e, see Richter 1961, 40–3; Avezzù 1994, 128–9.

[33] *Phaedr*. 268d7. On first impressions, the term *mousikos* here seems to indicate the most successful expression of Plato's musical education: not so much the expert of technical questions relative to music, as the person whose soul has been moulded by *mousikē* (one may note that in 268d6 and in e1, Socrates endows the *mousikos* with a gracious attitude and links a certain toughness to the absence of 'musicality'): the *mousikos* in the common sense of the term, the connoisseur of musical technique, would seem here to be the self-styled *harmonikos* (Moutsopoulos 1959, 46; Richter 1961, 39–40). Notwithstanding this, Barker's recent reading of the passage (2007, 89–90) seems to me entirely convincing. In it he showed that, taking into consideration the general context in which the musical reference appears, here the *mousikos* is one who effectively possesses the qualities that the self-styled *harmonikos* should have but lacks: the *mousikos* is therefore understood here to be a 'well-qualified musician' and, as such, coincides with an (authentic, not presumed) *harmonikos*.

the treatment in *Resp*. VII in the sense that it gives the impression that the study of harmony consists in something much more deep and complex than a study of the variation of the pitch of sound – the work of demons, we might say, borrowing the expression used by Glaucon in *Resp*. 531c5.

In *Resp*. VII, the encounter with empirical movement does not only appear as a passage that is incumbent and useful in an effort to illustrate how not to study the science of harmony. It also represents a lucid consciousness-raising of the empiricists' results which the science of harmony itself, with its rooting in the sensible, allows. On this point, it is interesting to recall a passage from the *Philebus*: a singular passage in the complex Platonic reflection on music, and illuminating with regard to Plato's awareness of the risks attached to the sensible component of the musical phenomenon. It concerns *Phil*. 55e–56a, where Socrates contemplates what remains of the arts once stripped of their mathematical part (55e1–3). What is left is the training of the senses through experiments and exercises, and the ability to form conjectures.[34] For Socrates, music is a clear example of an art characterised by these elements of unreliability, since music tunes an instrument not through measurement, but by 'guesswork' that comes with practice. In particular, *aulos* playing in its entirety is characterised by these empirical procedures as it hunts out measure in every note, capturing it as it passes by; consequently it contains a great deal of uncertainty.[35]

In the light of Plato's high consideration of music – in his works in general and in this dialogue in particular (as we have seen in the analysis of *Phil*. 17 and 26) – the idea seems bewildering that music, which at the beginning of the dialogue is presented as the emblem of the ontological dynamic of the agreement of Limit and Unlimited (26a2–c4), by the end of the dialogue has become a perfect example of a reality that is full of uncertainty. How can we reconcile the 'perfect music' at 26a2–4 with

[34] 55e5–56a1. In *Gorg*. 501a–b, while denouncing the limits and the negative objectives of gastronomy as a technique that only brings pleasure to the body, Socrates defines an empirical way of proceeding that could easily refer to the techniques deprived of mathematics mentioned in the *Philebus*: it proceeds in an entirely non-rational manner, without the ability to discern, and through exercise and experiment to preserve the memory of what usually happens and brings pleasure. Analogously to the *Philebus*, the absence of logical-mathematical components is underlined (see the terms *alogōs* and *diarithmēsamenē*); while the reference to memory adds a detail that could easily be inserted among the empirical techniques in the *Philebus*. The parallelism with the *Philebus* then continues in the introduction of music among the techniques devoted to procuring pleasure for the soul. In particular the reference is directed at *aulos* playing, *kithara* playing and choric music, and among the musicians mentioned appear the names of Meletus and Cinesias, interpreters of new experimental forms of music (501d–502a).

[35] 56a3–7. For the construction and interpretation of the passage, see Barker 1987.

the music as the 'art of guesswork' (*stochastikē technē*) in 56a3–7? We will endeavour to understand this, focusing on the context in which the decisive re-dimensioning of music appears.

The passage is inserted in the classification of sciences and arts that take up the last part of the dialogue. Music, in a similar way to medicine, agriculture, navigation and strategy, seems marked by a limit that is intrinsic to its nature: the application to sensible objects; and we note that we are in a context in which the precision of an art is placed in direct relation to the level of stability of the object that is being probed (58e–59c). In the final classification it is not only the field of applying a science or a technique that dictates the criteria of evaluation, but also questions of method. In *Phil.* 57a–e Socrates shows how important the approach to a science is: he speaks of two different sciences – two types of arithmetic, for example, or two metrical arts – according to whether they are interpreted in the manner of philosophers or not. We find the same distinctions in *Resp.* VII and then reconfirmed in the *Laws*, between the *mathēmata* of the many and the *mathēmata* of the few.[36] But it is interesting to note that in the *Philebus*, the methodological question that determines the distinction is presented as if it brought other sciences to life, endowed with a clear-cut and superior ontological status.

The location of music among the lowest levels of technique can certainly be explained by the fact that in *Phil.* 56a Plato concentrates on the technical and empirical components of the musical phenomenon. After all, music is taken precisely as an example of a reality characterised by the empirical procedures that remain, once the mathematical component is taken away. Music can become the 'art of guesswork' (*stochastikē technē*), i.e. absolute dominion of empirical practice, because it is characterised by a sensible component that is so consistent and relevant that, if the other, mathematical, component is removed, the art 'stays upright', existing as empirical technique. And, if it is a question of method in practice (that is, not neglecting the mathematical component), in substance the connection of music with the sensible – and consequently the character of empirical science – are inherent in its very nature. The absence of measurement in music does not derive from the absence of measurement in its objects of study, but nor does it derive from a mistaken approach alone: it is the result of the compromising involvement of music with the sensible, an aspect that

[36] In *Leg.* 817e–818e the distinction seems to be made between the non-scientific level of learning sciences and a superior one, reserved for future governors (cf. Lippman 1964, 75–6). In *Resp.* 536d5–537a2 the usefulness of teaching *mathēmata* from childhood is affirmed.

is emphasised by a certain methodological orientation.[37] If it is true that *Phil*. 56a doesn't say anything that would appear irreconcilable with Plato's whole consideration of music – i.e. that the musical phenomenon as a whole consists only of practical and empirical operations – it is also true that he is not only referring to an incorrect way of interpreting music. The passage does not state that music, correctly understood, is empirical art, but it does denounce the inauspicious possibility that it should become such.

In the light of such an awareness, behind the lashings that Socrates and Glaucon reserve for the empiricists in *Resp*. 531a4–b6, we can make out the preoccupation of one who not only is confronted with an incorrect methodological approach, but also sees that such an approach derives directly from the nature of the phenomenon that is being examined. It is worth noting the fact that, in the passage of the *Republic* on the empiricists and in that in the *Philebus* on music as empirical art, we encounter the same term to indicate the act of capturing something that is elusive. It is the verb to 'hunt' (*thēreuō*): used to suggest, in one case, the act of grasping an auditory stimulus that is not clear, in the other, the auletes' practice of 'striking' the right note during execution (*Resp*. 531a5–6: *thēreuomenoi*, *Phil*. 56a5–6: *thēreuousa*). In both cases the term alludes to the operations entrusted to the perceptive capacities, although the situations evoked by such operations are different: in the passage in the *Republic* the empiricists' theoretical experimentation on the research of the minimal interval as a unit of measure, in the *Philebus* the aulete's musical practice used in the production of sounds of the right pitch (Barker 1987, 106 n. 6).

The empirical approach evokes a danger that is intrinsic to harmony itself: the bond that such a discipline entertains with the world of phenomena can constitute a snare and be a serious obstacle to a correct interpretation of this study. As we shall see, it is not only the empiricists who are the objects of Plato's criticisms, and the definition of the correct way to approach the science of harmony will present itself as an undertaking that is anything but simple. In *Resp*. VII, nought but a derisory comment can be reserved for an empirical interpretation of harmonic science: it does not possess the full dignity of a *mathēma* that goes beyond the sensible,

[37] Ayace (1999, 40) notes that Plato chooses music as the best example of the arts that lack measure, to avoid confusion between a methodological and an ontological defect in the object of the art. But the fact that elsewhere, and in the *Philebus* itself, Plato recognises the perfection of music and the idea that, deprived of a certain component, musical art becomes empirical technique, seem to be visions of the ontological structure of music that are sustainable at the same time.

since its methodological setting is based precisely on the sensible component of music. From a Platonic point of view, to understand harmony in the manner of the empiricists means to disallow the quality that earns the science the right to be a part of the curriculum to form rationality: the capacity to favour a distancing from the sensible dimension. The fact that Socrates is initially looking to match himself with the Pythagoreans and that the encounter with the empiricists assumes the features of a casual digression seems to indicate that the only science that should be taken into consideration, to define an ideal harmonic science, is the Pythagorean. This certainly does not find Plato's approval but at least it distances itself from the sensible component to an extent.

Recalling the proposal to interrogate the Pythagoreans on questions of harmonics, Socrates abandons the description of the empiricists to dedicate himself to Pythagorean reflections (531b6–8, cf. 530e1–2). I believe that 'of those' (*ekeinōn*) at 530e1 and 'those' (*ekeinous*) at 531b7 refer to the same people and notably to the Pythagoreans. Barbera (1981) has shown all the difficulties of interpretation that the passage poses if this identification is accepted, concluding that again there is a need to call the identity of 'those' (*ekeinoi*) into question. All the same, it seems probable to me that the difficulties are relative to the consideration of Pythagorean harmonics itself in such a particular context and should not necessarily induce the search for other figures behind Socrates' polemical target (Robins 1995, 378 n. 29). In reality, the encounter with the Pythagoreans soon turns into criticism, not ironic on this occasion, although flavoured with a dash of bitterness. Split into two and separated from the 'digression' on the empiricists, the criticism of Pythagorean harmonics presents itself in two stages (530e7–531a 3 and 531b7–c4) that it is worth analysing in detail. As we shall see, some traits of an ideal science of harmony emerge from the criticism.

In 530e7–531a3, the Pythagoreans' procedure is defined by a reciprocal measuring of sounds and perceptible concords. The mathematising component of this harmonic approach – indicated here by the expression 'measuring . . . one with another' (*allēlois anametrountes*)[38] – is placed in greater evidence in 531b8–c4, where the activity of the Pythagoreans

[38] It does not indicate an empirical operation of measurement of the objects that produce sound, but a rational activity of calculation. Cf. van der Waerden (1943, 176–7) who, disagreeing with Frank (1923, 157) on the meaning of *allēlois anametrountes*, states: 'Nun steht hier jedenfalls nicht, daß sie die Saitenlägen aneinander messen, sondern die Töne und Konsonanzen.' The idea that here there is an implicit reference to the difference formulated in the *Politicus* (283e, 284b–c, cf. *Theaet*. 186a) between reciprocal measurement and measurement with reference to the right measure (Shorey 1963, 191 n. *e*) might suggest that Plato's disappointment is also due to the type of measurement used.

is defined as research of numbers in these perceptible concords. In both passages there is a recurrence of the reference to the 'perceptible concords' (*akouomenai symphōniai*), as the fields of application of Pythagorean harmonic science, and the assimilation of this methodological setting to the wrong way to study astronomy. The key elements of these two lines of criticism – measurement, number and the sensible concords – show up the tension between sensible and intelligible that runs through the entire treatment of the *mathēmata*, which becomes more intense in the reflections on astronomy and harmony and which, in the analysis of the empirical approach to the study of sound, moves towards the sensible. This tension seems to express itself most strongly in the treatment of Pythagorean harmony: in the Pythagorean approach the introduction of a relevant numerical component coexists with the attention to the sensible aspect. It does not seem to be by chance that both aspects reappear in both passages of criticism, expressed in almost identical terms: as regards the consonants, the use of the demonstrative (*tautais*) at 531c1 seems precisely to indicate a link with the first part of the criticism; while the change – 'seek the numbers' (*arithmous zētousin*) in the place of 'measuring' (*anametrountes*) – putting the accent on the mathematising turn that the Pythagorean studies have taken, contributes to reinforce the tension between sensibility and rationality.

It strikes me as important to underline that in these passages Plato fully recognises the mathematical component of Pythagorean harmonics and that, at the same time, pondering on how that component is considered in Pythagorean study, he constructs a criticism that attacks the *empiricism* of the Pythagoreans. The severity that Socrates shows towards the Pythagoreans' harmonic research seems to come from the encounter with a model of harmonic science that manages to individuate the essential component of the phenomenon of sound, and yet not make the decisive step of going beyond the sensible horizon. It is the delicate meeting with a rationalistic study of music that is, for an ideal harmonics, both a point of reference and an occasion for criticism. In the treatment of the fifth *mathēma*, Plato not only seems to notice the risk of making harmonics a study of strings and hearing (a risk that is present in an approach so dissimilar as not even to be taken seriously); he also seems to notice the risk, more intensely felt, of not activating the potential of harmonics to go beyond the sensible, though interpreting it as a science of numbers and ratios.

In *Resp*. 530e–531c Plato does not offer words of appreciation for the Pythagoreans' harmonic studies, and we are obliged to gauge a certain approval of their work from the respect with which he refers to them

in contrast with the joking line that he reserves for the empiricists. It might be precisely because he recognises a lot that is good in Pythagorean harmonics that he wants to reflect on it seriously, to state with a certain disappointment that, although departing from good premises, it does not reach 'the place where everything ought to arrive' (530e6). If the empiricists make him laugh, the Pythagoreans make him cross: respectfully but firmly, he criticises their work. As Barker has noted (1978, 342), Plato reproaches the Pythagoreans for not going further, having got so far: *for not rising further*, we might say, thinking of Socrates' words in 531c2–4, in the last part of a criticism that presents some constructive features. He accuses the Pythagoreans of not rising to the problems, that is of not finding out which numbers are consonants, which are not and why.[39] The Pythagoreans failed to create a science of harmony whose contents are 'problems' (*problēmata*) and 'consonant numbers' (*symphōnoi arithmoi*). It is in the light of such a project that we should consider this reflection on Pythagorean studies: the recognition of their rationalism, the denunciation of their 'empiricism'.

To endeavour to define Plato's censure of Pythagorean harmonics, it might help to follow the parallels with the mistaken work of contemporary astronomers, parallels that are presented by Socrates with too much insistence to be ignored. As we will remember, the principle error committed by contemporary astronomers consisted in the lack of recognition of the 'paradigmatic' value of the visible objects of astronomy and therefore in the incapacity of putting them aside in order to take up the 'problems' – i.e. to individuate the authentic content of the science of the stars, 'by thought and not sight' (529d5: *dianoia . . . opsei d'ou*). If we take the comparison with astronomy seriously – and it is not only Socrates' words that seem to authorise us to do so, but also the terminological similarities between the two treatments[40] – the Pythagoreans do not grasp the significance of perceptible phenomena of music and, as a result, they do not attribute to them the correct role in the study of harmonic science. Recasting the criticism at 530e–531c on the basis of 529c–530c, we could state that the Pythagoreans do not understand that audible consonants must be used as 'paradigms' for the study of those other contents, the true concords,

[39] 531c2–4. It seems to me that the operation of rising to the problems of harmony is all one with that of inquiring into the nature of consonant numbers: 'finding out' (*episkopein*) appears to have an epexegetic rather than a final value (to rise to the problems to inquire . . .); on the two possibilities see Robins 1995, 376 n. 27. The fact that turning to the problems of harmony is an action of rising merits being underlined, in a context of the treatment of the *mathēmata*, marked by the theme of a rising of the soul.

[40] The most interesting is that which regards the term *problēmata*, but there are other important links, for which see Mourelatos (1980, 49).

authentic objects of the study of harmonic science (in the treatment of harmonics the concept of 'concord' has the value that *symmetria* holds in the treatment of astronomy, see Franco Repellini 1989, 435). Like the previously criticised contemporary astronomer, the Pythagorean who studies harmonics is fulfilling an important step, translating the movements of the audible concords in numerical ratios; but he stops 'auf halbem Weg' (Richter 1961, 68–9) and does not take the decisive step: the recognition of the true contents of the science of harmony and the consequent dismissal of sensible data.[41]

In the criticism in *Resp*. 530e–531c, the relationship that Pythagorean harmonics entertains with the dimension of sound is underlined by repeated references to the horizon of sound – 'audible concords', 'sounds'. Pythagorean harmonics come across as a mathematical reading of played music, an explanation in intelligible terms of a phenomenal reality. The sound is the point of departure of every harmonic analysis, even Platonic, (Barker 1978, 341); analogous to the case of astronomy, what Plato suggests here is not a purely speculative science of harmony: it is a science that teaches to go beyond sensible content. But in Pythagorean harmonics sound is also the term of reference for the development of theoretical research: the Pythagoreans' 'empiricism' thus consists in this constant attention to the acoustic phenomenon in the application of a science that is a mathematical activity *on sound*.[42] In such a way, the use of rationalistic instruments and attention to musical practice blend together in a project that cannot find favour with Plato (in particular the Plato of *Resp*. VII): in Pythagorean harmonics, numbers do not supplant sound, but translate it into an intelligible language.

The definition of the dimension of sound is twice marked by the reference to a particular musical reality – 'concord' (*symphōnia*) – traditionally associated with the Pythagoreans' activity. The testimonies attribute to early Pythagoreanism, and at times to Pythagoras himself,[43] the discovery of the

[41] As Mourelatos shows (1980, 49), the comparison can be extended to the bad geometer: as he looks for ratios in visible diagrams, so the bad astronomer looks for true movements in the visible celestial bodies and the Pythagorean looks for numbers in audible concords. It is interesting to note that, in the field of astronomy, Aristotle complains of a lack of empiricism in Pythagorean research (cf. *De cael*. 293a15–27): it is of course a different point of view, but one which takes into account the speculative tendency of Pythagorean study.

[42] Certainly, in the case of the empiricists too – with more reason in their case – the link that the theoretical speculations of these scholars has with musical practice might ring a sorry note from a Platonic point of view. It is probable that the work of the *harmonikoi* to formulate an ordered system of scales was imposed, in the need to bring clarity in the variegated panorama of musical practice characterised by frequent modulations on different *harmoniai*, but that does not exclude strictly speculative motivations (Wallace 1995, 30).

[43] Diog. Laert. VIII, 12; Nic. *Ench.* 245, 18–248, 26; Iambl. *V.P.* XXVI; Gaud. 340, 3–341, 25.

numerical ratios of the fundamental *symphōniai*: 4:3, 3:2, 2:1, proportions between the strings in concords of fourth, fifth and octave. Now, besides the exactness of similar attributions and the possibility of reconstructing the practical operations that have led to such acquisitions,[44] the empirical importance is evident in a discovery of the type. The individuation of a *symphōnia* comes from the measurement of the bodies producing sound and is susceptible to empirical evaluation at any point. It is worth noting that this Pythagorean empiricism does not seem to be the object of Plato's attention in *Resp*. VII: the charge of a 'harmonics of strings' only appears with respect to the derided empiricists. In *Resp*. VII Plato concentrates rather on the mathematical component, the original and characteristic aspect of Pythagorean harmonics, and on the treatment of the phenomenal data.

But the reference to concord implies another interesting connection with the sensible dimension: it evokes a phenomenon commonly defined in function with the perceptive component. In the technical language of music *symphōnia* is the phenomenon of two sounds that are able to fuse into one to the extent that they appear to perception as only one sensible (below, pp. 171–80). We might imagine that the perceptive component of a phenomenon of this type is also very much present in the background of a mathematising treatment of concord by the Pythagoreans. At the same time we might imagine the level of theorising of a harmonics, that of Plato, involved in concords that have lost their essential phenomenal nature. As the double use of the participle *akouomenai* ('audible') next to *symphōniai* clearly shows, concord also remains for the Pythagoreans a purely acoustic datum, whereas Plato would understand it as a purely numerical datum.

The 'empiricism' in Pythagorean harmonics that cannot be tolerated is not of those who 'put the ears before the intellect', but the empiricism of one who reconciles the ears with the intellect.[45] And an accusation of empiricism certainly appears strange directed at research on music that has a characteristic and original element in the mathematising component (Meriani 2003, 105). Elsewhere, Pythagorean research on harmony runs up against the opposite charge: that of excessive 'rationalism'. In Ptolemy's

[44] In VIII, 12 Diogenes Laërtius attributes to Pythagoras the use of an experimental instrument like the monochord. Cf. Ar. Quint. *De mus*. 97, 3–7, who relates the exhortation 'to use the monochord' (*monochordizein*), urged on his disciples by Pythagoras on his deathbed. But we should treat such testimonies with caution; in particular, the use of the monochord is quite unlikely as it probably first appeared around the fourth century (van der Waerden 1943, 165, 170–8; Guthrie 1962, vol. I, 221–4; Burkert 1972, 375 and n. 22; Lloyd 1987, 295–6; Comotti 1991; Huffman 1993, 147–8). On the monochord, see Creese 2010.

[45] Cf. Burkert 1972, 386, for whom Plato's criticism of the Pythagoreans is for badly combining 'reason' (*logos*) and 'perception' (*aisthēsis*) in the consideration of perceptible concords, doing harm to both.

Harmonica – a work that, among other things, is greatly influenced by Pythagoreanism – the Pythagoreans are criticised for using an aprioristic approach in the study of harmony, rejecting empirical evidence where it clashes with mathematical premises. The most significant case is the Pythagoreans' rejection of the octave plus fourth being a concord as in mathematical principles, although from a perceptive point of view it sounds like a fourth. For the Pythagoreans only the intervals expressed by multiple or epimoric ratios are concords, while the octave plus fourth is expressed by an epimeric ratio, 8:3.[46] Now, one may note that such an assumption, which for Ptolemy posed problems in the study of acoustic *phenomena*,[47] recalls the dismissing of the universe of sound hoped for by Plato precisely when he was criticising the work of the Pythagoreans: the phenomenon of concordance is a question of mathematical ratios, of 'consonant numbers'. An expression analogous to *symphōnoi arithmoi* in *Resp*. 531c3, in relation to the Pythagoreans, appears in a passage of Porphyry's *Commentary on Ptolemy's Harmonics* (*In Harm*. 107, 15 ff. = 47 A17 DK). 'Some Pythagoreans' are attributed with the practice of establishing the ratios of the concords (*tous logous tōn symphōniōn*) and comparing them among themselves to show which are more concordant. Here again the Pythagorean attention to numerical factors in the analysis of the phenomenon of concordance is underlined (Meriani 2003, 100–2). Such testimonies recall research on harmony marked by an interest in the numerical aspect of the perceptive phenomenon of concord; thus they describe a study of harmony that seems to have many points of contact with the Platonic harmonics of *Resp*. VII.

In an effort to bring into better focus the type of work on sound criticised by Plato in *Resp*. 531b6–c4, one immediately finds oneself turning to the harmonic research of the Pythagorean who was most versed in music (Ptol. *Harm*. 30 ff. = 47 A16 DK) and closest to Plato (*Ep*. VII, 338c–d, 350a): Archytas. We now encounter complex questions such as the relationship between Archytas' theories and Plato's reflections, and the relationship between 'empiricism' and 'rationalism' in the work of the

[46] Cf. Ptol. *Harm*. 12–13. One might hypothesise a connection between the Platonic scheme for an ideal harmonics in *Resp*. VII and the thesis according to which the ratios between the concords are only multiple or superparticular (Barker 1981, 10). Cf. ps.-Eucl. *Sect. can*. 149, 20–4: '. . . the concordant notes, as they form a single union of two sounds, are among those numbers that are defined with only one name in relation one to another, multiple or epimoric'.

[47] It is interesting to note how the definition of harmonic science put forward by Ptolemy (*Harm*. 94, 25–95, 2) consists precisely in a mathematical treatment of phenomenal contents: the science of harmony is 'a form of mathematics, the form that concerns the ratios of the differences between heard things'.

Tarentine philosopher. Archytas' division of tetrachords into three genera – listed by Ptolemy in *Harm*. book I, ch. 13 (30–1) and book II, ch. 14 (70–4) – show an accentuated mathematical rigour, but also a notable attention to musical practice.[48]

Here follow the principle characteristics of Archytas' divisions. First of all, the recurrence of the same lowest interval in the tetrachords of the three genera: the interval expressed by the ratio 28:27. In second place, the presence of two ratios that are not epimorics in the chromatic genus – the relationship between *mesē* and *lichanos* (32:27) and between *lichanos* and *parhypatē* (243:224) in the chromatic – not observing the principle according to which the concordant intervals are expressed by multiple or superparticular ratios. According to Barker,[49] the absence of regularity in the appearance of the superparticular ratios disappears if one considers the ratios between the notes in the three systems: it is possible to touch all the notes of the three genera moving through intervals that can be expressed through superparticular ratios. Huffman's recent explanation is different (2005, 414–23): he argues in favour of the hypothesis that in his divisions Archytas does not follow the principle for which concordant intervals are expressed by multiples or superparticulars at all. Another characteristic of Archytas' theory is the presence of a major third to express the highest interval in the enharmonic tetrachord, in place of a ditone. This is perhaps a characteristic emblematic of Archytas' attitude towards musical practice. Unlike Aristoxenus who chooses the ditone, denouncing the custom of musicians to opt for a smaller and sweeter interval, Archytas seems interested not so much in normalising in the theory an *incorrectness* of musical practice, as to translate into theoretical and mathematical terms a custom of use. Lastly, as a final feature characteristic of Archytas' divisions we note the separation from a model, certainly familiar and probably much appreciated, like Philolaus' diatonic.

[48] Frank's thesis, (1923, 163, 166, 266), in which an 'apriorischen Zahlenspekulation' in musical theory is not to be found either in Pythagoreanism or, in particular, in Archytas, but introduced by Plato does not seem to me to be sustainable, and nor is the image of Archytas as an 'empiricist' convincing ('Archytas zeigt mit einem Wort alle die Eigentümlichkeiten die Plato an den "Pythagoreern" als Empirismus verdammt . . .'). On the one hand, the testimonies on Archytas make it difficult to deny the numerical–speculative component of his musical theory; on the other, in the light of analyses conducted on the *mathēmata* in *Resp*. VII, there is some doubt surrounding the aprioristic component of harmonics that Plato has in mind. For a criticism of Frank's position, see van der Waerden 1943; Burkert 1972, 384 and n. 69, 385–6. Huffman has recently placed an emphasis on the connections between Archytas' theory with musical practice and on their importance (2005, 412–25).

[49] 1989a, 46–7; 1989b, 162–5 and *Appendix*, table II, 175.

These peculiarities can perhaps be interpreted in relation to Archytas' tendency to dedicate himself to the concrete musical experience, working on it with mathematical instruments to provide an intelligible reading of it.[50] Empiricism and rationalism seem to coexist to a certain extent in Archytas' work: in this sense, we can perhaps speak of an anticipation of the sapient mix of thought and sensation that will be theorised and put into practice by Aristoxenus in his studies on harmonics.[51] The Pythagorean, who dedicated himself to music more than others, concentrated on analysing musical forms of practice, but also on bringing to light the mathematical structures on which those forms are based.

Of the Pythagorean *empiricism* criticised in *Resp*. VII we can perhaps recognise in Archytas the research of empirical verifications, just as we can a close relationship with current musical practice. If Plato's criticism also affects Archytas, it does so to the extent that his work remains tied to musical practice, creating a reading of it in a mathematical key: and hence a criticism befits him regarding the object of harmonic inquiry, i.e. perceptible sounds. The effort to elaborate systems in which musical phenomena can be interpreted in an intelligible manner perhaps reveals the image of an Archytas committed, in the field of music, to a scheme of 'saving the phenomena': a scheme that is a long way from the 'demonic' science of harmony in *Resp*. 530–1 that the phenomena proposes to dismiss.[52]

Still, if we can make out Archytas' work behind Socrates' reference to the Pythagoreans' inopportune attention to played music, the accusation of not probing the nature and reason of concordant numbers would be inappropriate were we to direct it at Archytas. It does not seem that Archytas can be accused of ignoring those aspects that are fundamental in harmonics understood in the Platonic sense. The observation suggests turning the question on its head: seeing Archytas' work not as the objective of Plato's criticism but as the very type of discipline that Plato has in mind

[50] For an analysis of these characteristics in the work of Archytas and the relationship between mathematisation and attention to musical practice, as well as the rapport with the critics of *Resp*. VII, see Barker 1989a, 46–52; 1989b; 1994, 132–5; 2007, 292–302; Robins 1995, 381–4; Huffman 2005, 413–14.

[51] Cf. *El. harm*. 42, 10–11; 48, 11–13. For a comparison between Archytas' work and that of Aristoxenus, also extended to other aspects, see Barker 1989b, 170–3.

[52] The expression 'saving the phenomena' appears in Simplicius' comment on Aristotle's *De caelo* (*In Arist. De Caelo Comm*. 488, 18–24; cf. also Simpl. *In Arist. Phys. Comm*. 291, 21–292, 3) to define the undertaking that the astronomer Eudoxus of Cnidus set about, in answer to Plato's request to individuate the uniform and regular movements that completely rescue the phenomena relative to errant stars. Franco Repellini (1989) showed that this project cannot be identified either with the Platonic mathematical astronomy of *Resp*. VII, or with Eudoxus' astronomy, for what it is given to reconstruct. Mourelatos (1980, 36, 52–8) is of the same opinion in respect of astronomy, but also geometry and harmonics in *Resp*. VII.

in *Resp*. 530–1, while, in his dramatic context, he makes Socrates express disapproval towards the Pythagorean research of the time.[53] Furthermore, the construction of the World Soul in the *Timaeus* – an example of the application of the theory of means and proportions elaborated by Archytas, but at the same time also a demonstration of the ideal harmonics in *Resp*. VII[54] – precisely shows the debt that Plato owes to Archytas' harmonic investigation.

The criticisms directed at the Pythagoreans, and in particular the description of the limits of their research (531c2–4) allow us to identify certain features of a correct study of harmonics according to Plato. The 'audible concords' leave room for the 'consonant numbers' and in place of the operation of 'finding numbers' is the 'rising to the problems'. In a science of harmony that leans towards going beyond sound, the one allusion to sound is found in the term 'concordant' (*symphōnoi*), that has the value of a quality of the authentic object in this research, numbers. The *symphōnoi arithmoi* are not the translation, in mathematical terms, of the perceptible phenomenon of concordance, but the numbers that show determined qualities within a system and that can be defined as concordant by analogy with the phenomenon of concordance.[55] We can read this expression as the Platonic solution to the tension between sensible content – 'sounds' and 'audible concords' – and intelligible contents – 'numbers' – perceptible in the description of Pythagorean harmonics. Hence, the job of defining which numbers are concordant and which are not reveals itself to be different with respect to that taken on by the Pythagoreans: it is not a question of individuating the numerical reasons of the phenomenon of concordance, in other words of understanding which relation exists between determined acoustic stimuli and the sensations that these solicit on the one hand and the numbers that describe them mathematically on the other. An inquiry

[53] The proposal is by Barker (1989a, 52; 1989b, 170). Cf. Huffman's objections (2005, 423–5), for which the work of Archytas does not answer the Platonic search to discover which numbers are concordant and which are not: Archytas' divisions require an appeal to the horizon of sound.

[54] The idea of seeing an example of the scheme of the science of harmony sketched in *Resp*. VII in the psychogony in the *Timaeus* is widespread, cf. Frank 1923, 13, 181; Burkert 1972, 372–3; Mourelatos 1980, 51–2; Barker 1989a, 54; 2005, 120–1; Robins 1995, 385–7. This does not mean seeing, in the 'scale' in the *Timaeus*, a 'metaphysical construction' that has nothing to do with real music, as Frank maintained (1923, 167, 266–7). *Tim*. 35–6 is an example of the application of the scheme in *Resp*. 530–1 not in as much as it is a construction that prescinds from the phenomenal horizon, but in that it goes beyond that horizon, projecting itself towards intelligible contents. This is, as we have shown, the sense that should be attributed to going beyond musical phenomena in the study of harmony in *Resp*. VII (cf. Huffman 1993, 150–1).

[55] Cf. Barker 1978, 341–2; 2000, 92, where he suggests understanding *symphōnos* not so much in the sense of being 'concordant' as 'musically acceptable in a melodic system'. Cf. also Mourelatos 1980, 51.

into the 'concordant numbers' consists in an analysis of the properties of the ratios, released by sensibility even to the point of going against the perceptive data, if necessary.[56] The reference to the *problēmata* at 531c2 recalls the invitation in 530b6–7 to leave the stars alone and concentrate on the 'problems' (Mourelatos 1980, 52). In that case, instead of an exhortation to dismiss sounds, there appears the invitation to dedicate oneself to a science of harmony devoid of sounds: in fact, in the field of harmony too, addressing the important contents requires the dismissal of sensible data. Among other things, we should reflect on the fact that if the mathematical study of sound becomes a study of numbers, the close relationship that harmonic science has with the sensible is cancelled out and consequently the difference with respect to the first three disciplines fades. The discourse on astronomy is analogous in that, making itself an abstract science of solids in movement, it reduces the distance from the first three sciences in relation to the rapport with the sensible.[57]

A correct harmonic science – i.e. one able to solicit that distance from the sensible that the five *mathēmata* ought to suggest – must set out from the awareness that musical practice only bears an opaque reflection of the ideal harmonic structures.[58] Hence, once its intelligible nucleus is extrapolated from played music, it makes no sense to re-address the sensible

[56] It is possible, as Barker suggests (1994), that such an analysis is similar to that conducted by Archytas and related by Ptolemy in *Harm*. 11–12, Robins (1995, 385) is not convinced by this hypothesis, due to the fact that Plato is not interested in explaining why the ratios that define concordances are superior to others, but in classifying the ratios on a purely mathematical basis. All the same, this observation seems to show only Archytas' and Plato's different points of view in relation to practice (for Archytas it might have been to explain why the ratio of the octave, the most beautiful concordance, is the most beautiful, while for Plato it might have been to explain the superiority of the 2:1 ratio), but it does not exclude the hypothesis that the procedure of analysis of ratios followed by Archytas is for Plato an example of good investigation into concordant numbers.

[57] Cf. Meriani 2003, 83–4. Mueller (1980, 116–18) notes that, if the science of harmony becomes an investigation into numbers in themselves, not as 'numbers of something', then the relationship between harmonics and the physical world is more similar to that of arithmetic than of astronomy or geometry. Words that might sound like a criticism of the operation that Plato conducts in *Resp*. VII are to be found in the second book of Aristotle's *Physics*. In II, 2, 193b32–194a13 Aristotle explains that a science like mathematics lends itself to abstract treatment, because it deals with lines, figures and such like, but not in as much as they are the boundaries of a natural body: as such they may be considered in an abstract way, separate from the movement of bodies. However, the exponents of the philosophy of Ideas mistakenly apply this process, abstracting physical entities that are not susceptible to abstraction, as the mathematical are; it is the case of those sciences that are more physical than mathematical, like optics, harmonics and astronomy (with respect to a discipline like geometry, which has to do with physical lines, but not in as much as they are physical, optics deals with mathematical lines, but as physical and not mathematical).

[58] Cf. *Symp*. 187c2–d4, where through Eryximachus, a clear distinction is expressed between a music understood in the ideal sense, expression of the harmony between opposites, and music in the sensible dimension that is a confused representation of that dynamic, cf. Pelosi 2006a.

forms of musical expression. The 'material' on which the future dialectician dedicated to harmony has to work is not the sounds – the point of departure of harmonic science,[59] as the stars are in astronomy – but a concept of 'harmoniousness' that finds expression and explanation in an exclusively numerical dimension. To rise to the problems of harmonic science, dismissing sounds, thus means moving onto a different ontological plane (Mourelatos 1980, 53–4), in a project that presents itself as mathematical and aims at becoming metaphysical. It is precisely within a dimension of metaphysical values, and not in that of the sensible, that harmonics of this type look for confirmation. And yet, it should be noted that such an undertaking does not consist in the identification of the metaphysical essence of concordance: constructing a propaedeutic programme to dialectic, the only science that leads to supreme truth, Plato cannot commit the error of claiming abilities and acquisitions that this educative level can only set in motion (Barker 1978, 337). Thus, between the mathematical study of sounds carried out by the Pythagoreans and the contemplation of a metaphysical harmony there must be a space – meagre perhaps, but clearly defined – for a science of harmony that moves from sounds and goes beyond them, in the discovery of numerical contents that refer to ethical and metaphysical dimensions.[60] The subtle but substantial difference with Pythagorean harmonics resides not so much in the method of inquiry – rationalistic and mathematical in both cases – as in the relation between this numerical component and the perceptive aspect. For the Pythagoreans numerical ratios are the mathematical expression of the ratios perceptible between sounds, whereas for Plato they constitute a purer expression of those qualities only weakly represented by acoustic phenomena. Thus we understand why going beyond the perceptive horizon results as something that cannot be put forward for the Pythagoreans while at the same time being essential for Plato (Barker 1978, 341).

[59] Although in *Resp*. VII Socrates does not concede much space to the sensible part of the study of harmony, involved as he is in urging that it be dismissed, this aspect should nonetheless be accorded the right importance, considering also this extreme in the journey of the mind that the future dialecticians must complete from sounds to problems of concordant numbers. The initial comparison with the dimension of sound can be read, on the basis of reflections illustrated in *Resp*. 523–5, as an occasion of solicitation of the intellect called to clarify the contrasting perceptions, in this case the acoustic sensations of high and low pitch.

[60] Rightly, Barker (1994, 134–5) underlines the evaluative character of the adjective *symphōnos* referred to numbers in 531c3: as well as the perceptive experience of listening to concords, the *symphōnoi arithmoi* evoke the ethical and metaphysical dimension of the Good (cf. 430e3–4 and 442c10–d1, where the concept of *symphōnia* is used to describe temperance; in 591d1–7 *symphōnia* is the balanced order of the soul).

The relationship of this last, Platonic, science of harmony with the entire training programme of the *dianoia* is clear. It possesses that characteristic so dear to the educative curriculum that is propaedeutic to dialectic: the ability to get used to a distancing from the sensible, obliging the individual to start out from the phenomenal datum to go beyond it every time. However, to activate this faculty of harmonic science means taking on that which, in every sense, seems to be a paradoxical characteristic of music: bearing an intelligible content under sensible forms. One might agree with Glaucon on the superhuman value of a study of the type. For Socrates there are no alternatives: harmony is either studied in this manner, that is 'to search for the beautiful and the good', or it is a completely useless study (531c6–7).[61] The 'demonic undertaking' to which the future dialecticians are called, is a science of harmony that places the intellect before the ears.

The analysis of harmonic science in *Resp*. VII seems to mark the point of greatest distance from the sensible component of music, and with it from the evaluation of acoustic sensibility that we dwelt on in preceding chapters. Is there a way to reconcile and link together these two aspects of Platonic reflection? What relationship is there between *listening to* music and going beyond listening to *understand* the intelligible structures of music? And what relationship is there between the benefits that can be drawn from the first activity and the second? There are no answers to these questions, either in *Resp*. VII, or elsewhere, and we might ask ourselves if Plato is aware of this discrepancy.

The impression is that the nature of the psychic mechanisms on which Plato means to intervene with music greatly conditions the way in which he takes the sensible and intelligible components of music into consideration. So, where music has to reach and cure the parts closest to sensibility, the sensible contents are considered and opportunely made use of; where

[61] This recalls the theme of the usefulness of harmony in *Tim*. 47c–e. The theme of usefulness recurs several times in the treatment of the *mathēmata* and marks the difference between the current interpretation of the five sciences and the Platonic interpretation. In 527d5–6 Socrates jokes about Glaucon's attention in listing astronomy's practical uses, to avoid the accusation of prescribing 'useless disciplines' (*achrēsta mathēmata*, cf. 527e5–6). The same concept of utility of a science must be thought out in the light of the educative scheme: studies less useful in relation to practical purposes turn out to be the most useful for the preparation of the soul for dialectic. The theme also appears in relation to the faculty of the soul on which there is an intervention: in 530b8–c1, during the treatment of astronomy, Socrates describes the training of the *dianoia* as an operation that transforms from useless to useful the element of the soul that is by nature intelligent. We should remember that in *Tim*. 40c3–d3 (above, pp. 127–8), as per the value recognised in the figurative aspect of the study of the stars, an astronomy that is not based on representations is 'useless'.

music concerns rationality, they are less taken into consideration, to the point of disappearing. The *Timaeus* shows a situation in which these two tendencies seem to meet and coexist; but it does not seem to be a place in the dialogues where they find a true equilibrium. And there is no place, psychic or psychophysical, in which the equilibrium between sensible and intelligible is a stable acquisition.

CHAPTER 4

Music in the body and soul

If there is no doubt that the break-up of sound is the point 'where everything ought to arrive', (530e6) for the interlocutors of the *Republic*, it is not necessarily Plato's last word on music. I would like to consider taking a different route through the dialogues (in particular the *Republic* and the *Timaeus*), following sonority and endeavouring to define the features of the presence of music in the body and soul.

In the first part of the chapter, I will deal with the passages in which Plato treats the acoustic phenomena and their perception. Firstly, we will consider the literary aspect, which is also important when highlighting the attention that Plato dedicates to the dimensions of sound and hearing. Then we will tackle the analysis of two passages in the *Timaeus* that are fundamental to Plato's treatment of the reception of musical phenomena, but which are relatively problematic. We will evaluate these passages in relation to the theories of perception in the *Timaeus* and the ancient theories of music and acoustics.

Following on, in the second half of the chapter I will concentrate on the parts in which the *psychē* and the correct functioning of the *psychē* are described in musical and harmonic terms. Socrates rejects a theory of soul-harmony in the *Phaedo*, but we shall see that, through the dialogues, Plato retrieves and re-elaborates the idea of a harmonic order of the soul as he moves from the *Republic* to the *Timaeus*. This retrieval marks different steps in a crucial reflection on the structure of the soul and its connection with the body.

ACOUSTIC PHENOMENA AND PERCEPTIVE MECHANISMS

Sounds and voices in the dialogues

Despite the fact that the future dialecticians carry out their studies on harmony in 'silence', there is great sonority in many of the passages in

which Plato appears to be carefully observing the acoustic phenomena and their reception. From the silence of supersensible harmony to sounds of becoming the passage is brief: in *Resp* VII, one only need go from the elaboration of the curriculum that is propaedeutic to dialectic to the myth in the cave. It is certainly a step backwards, because one needs to go back into the cave: a place from which anyone concerning themselves with the science of harmony would attempt to escape. But the presence of the theme of sound and hearing in the Platonic work seems sufficiently relevant (and not only in relation to the dimension of becoming) as to authorise a descent in search of the interaction between sound and the senses that the study of harmonic science invites us to go beyond.

The worrying scenario of the underground cave, evoked to describe the state of a humanity that is slave to ignorance, is not shrouded in silence. Some of the men carrying objects speak (515a2–3), and their voices, echoing off the wall to which the prisoners are turned, become the voices of the shadows projected onto the wall (515b7–9). The deception in which the prisoners live – the gnoseological misunderstanding that causes them to believe that appearance is reality – also explicitly concerns the dimension of acoustic stimuli and their perception. And it is worthwhile underlining how much the phenomenon of the echo contributes to create the climate of illusion that is the distinctive feature of the cave: the echo, an acoustic deception that carries a strong power of suggestion, slots in perfectly with the fiction that is the life projected on the wall, becoming the voice of the shadows.[1]

The sounds in the cave in *Resp*. VII are only one example of the 'sonority' that pervades the dialogues and is evidence of the particular attention shown by Plato towards the phenomena of noise, sound and voice and the faculty of picking them up. In a scene that is a long way from that of the cave in mood and content, the banquet in the *Symposium*, there is a passage that enables us to get the measure of Plato's interest in the universe of hearing. At the end of the dialogue, in the din that accompanies the eruption onto the scene of the agitated Alcibiades, two sounds stand out in rapid succession: the sound of the aulete (212c8: *aulētridos phōnēn akouein*) and the voice of Alcibiades (212d3: *Alkibiadou tēn phōnēn akouein*). The similarity of the

[1] In *Phaedr*. 255c4–7, Socrates, evoking the phenomenon of the echo to describe the return of the stream of beauty to the loved one, also refers to the physical aspects of the phenomenon: the echo rebounds off smooth and hard bodies. The connection between echo and the body's solidity that refracts the sound can be found previously in Empedocles (31 A86); in Arist. *De an*. 419b4–9, the hardness and smoothness of bodies are the qualities that produce the actual sound. For descriptions of the echo phenomenon, cf. Arist. *De an*. 419b25–33; ps.-Arist. *Probl*. XI, 6, 7, 8, 9, 23, 25, 51; XIX, 11.

expressions, with the repetition of the term *phōnē* to indicate music in the former passage and voice in the latter, seems to suggest a closeness, that is subtle but full of meaning, between the sound of the *aulos* and Alcibiades' voice when drunk.[2] The same attention to the universe of sounds, to be found in the dramatic fabric of the dialogues, filters out in the musical term that Socrates uses in the *Phaedo* to describe the crying of the women when faced with his death: 'false notes' (117e1: *plēmmeloien*) to which he does not enjoy listening.

We have already seen that in the *Phaedo* there is an evaluation of a sensibility that is also acoustic. But hearing is not only the means by which we can solicit the memory of unchangeable realities in the soul that is immersed in becoming. Along with sight, the noblest sense, and with the intellective faculty (111b3–4: *opsei kai akoēi kai phronēsei*), acoustic perception appears among those faculties that are most developed in the 'true earth', a dimension that is characterised by greater authenticity.[3] Beyond the myth and the ideal dimension of the 'true earth', and where hearing and intellect do not enjoy the straightforward rapport of neighbours, the theme of sound and hearing carries the complex question of the relationship between acoustic sensibility and the soul, and hearing is almost never an innocent act.

Another echo – apart from that which creates the deception of the speaking shadows in the cave – resonates through the pages of the *Republic*: it is the sound wave that carries back, amplified, the notable din created by the politicians fomenting crowds (492b5–c2). The noisiness of the action exercised by the politicians is precisely evoked although in only a few remarks: the places in which they speak always harbour a consistent throng (assemblies, tribunals, theatres, camps); the politicians make a 'great hubbub', because they always express themselves 'exaggerating, shouting and making much ado'; while 'the rocks and the place' double the din with the echo.[4] The acoustic pollution produced by them contributes to create an atmosphere that seems the exact antithesis of the 'healthy place', permeated

[2] Think of the link between auletic music and drunkenness used to characterise, among other things, the democratic man in *Resp*. viii (561c7–8).

[3] This same trinomial – seeing, hearing and thinking – appears in *Resp*. 367c7–d1 to indicate those assets that it is worth possessing for themselves; cf. also 357c2–3, where, however, hearing does not appear.

[4] Another vivid example of a disturbing noisiness is that produced by the assembly before which Socrates delivers his own self-defence, cf. *Apol*. 21a5, 30c2–3; cf. Wille 2001, 676. According to Wersinger (2003, 191–2), the criticism in the *Republic* of an 'acoustique de la diffusion . . . de l'écho' represents a difference with respect to the *Laws*, where conversely there is an acoustic of diffusion regarding the content of law.

with positive visual and acoustic stimuli, that Socrates tries to establish, at least on paper, for the young of the ideal State (401b–d).

From a reading of these passages there emerge themes such as: the passivity of auditory perception;[5] the hearing's relationship with a soul called to confront the difficulty of managing the contents introduced by acoustic sensation; the importance of the contents that are trusted to a sonorous message, whether they be verbal or strictly musical. The ears that, in the treatment on harmonics in *Resp*. VII, enjoy a precise, although complex, rapport with an operative intellect are elsewhere, in the absence of a *psychē* that is able to grasp and elaborate their messages, a strong motive for apprehension. 'The ears hired out' of the 'lovers of hearing' (475d1–e1) and the ears that, like a funnel, let the sweet, soft and mournful auletic *harmoniai* filter through (411a5–8) are canals with open access to the soul: the starting point of a risky and involved psychophysical act that is hearing.[6]

Physics, physiology and psychology: sound and perception

As we have seen (above, ch. 2), in the *Timaeus* Plato weighs up the effects of music with great care regarding the relationship between the soul and body; in the dialogue there also appears the clearest and most detailed definition of sound and the mechanisms of auditory perception. In *Tim*. 67a7–c3, within the framework of an overall treatment of the *pathēmata* produced by bodies, there is a description of the sensible, object of hearing, and the perceptive mechanisms tied to the acoustic sphere. The passage presents certain syntactic and interpretive questions that merit discussion: so we will begin by a reading and translation of the text.

Τρίτον δὲ αἰσθητικὸν ἐν ἡμῖν μέρος ἐπισκοποῦσιν τὸ περὶ τὴν ἀκοήν, δι᾽ ἃς αἰτίας τὰ περὶ αὐτὸ συμβαίνει παθήματα, λεκτέον. ὅλως μὲν οὖν φωνὴν θῶμεν τὴν δι᾽ ὤτων ὑπ᾽ ἀέρος ἐγκεφάλου τε καὶ αἵματος μέχρι ψυχῆς πληγὴν διαδιδομένην, τὴν δὲ ὑπ᾽ αὐτῆς κίνησιν, ἀπὸ τῆς κεφαλῆς μὲν ἀρχομένην,

[5] On the fact that in the ancient reflections, starting from those of the Presocratics, the accent is placed on the particular passivity of hearing, which is greater, for example, that the passivity of sight, cf. Bonadeo 2003, 27.

[6] On the risk of the soul being affected by harmful contents passing through the ears, see *Soph*. 234c2–d1, where the Stranger denounces the danger of a bad use of words, aimed at bewitching young people 'with words through the ears, exhibiting the wordy images on all subjects'. Of interest are the passages in which the negative psychological effect of the discourses, penetrated through the ears, is described in physical terms as the effect on the auditory apparatus. In *Resp*. 358c7 Glaucon feels 'the ears stunned' by Thrasymachus' speeches; while in *Phaedr*. 243d3–5 certain speeches on love give Socrates the sensation of having his hearing encrusted with salt, so much so that he feels the need to wash it out with fresh water.

τελευτῶσαν δὲ περὶ τὴν τοῦ ἥπατος ἕδραν, ἀκοήν· ὅση δ' αὐτῆς ταχεῖα, ὀξεῖαν, ὅση δὲ βραδυτέρα, βαρυτέραν· τὴν δὲ ὁμοίαν ὁμαλήν τε καὶ λείαν, τὴν δὲ ἐναντίαν τραχεῖαν· μεγάλην δὲ τὴν πολλήν, ὅση δὲ ἐναντία, σμικράν. τὰ δὲ περὶ συμφωνίας αὐτῶν ἐν τοῖς ὕστερον λεχθησομένοις ἀνάγκη ῥηθῆναι. (*Tim*. 67a7–c3)

Considering our third sense organ, that relative to hearing, we must explain the reasons that cause its affections. In general, let us establish that sound is the impact transmitted by the air, through the ears, to the brain and blood, until it reaches the soul; and that the movement caused by it, a movement that starts at the head and ends up in the area of the liver, is hearing. The rapid motion is high pitched, the slower is lower pitched; that which is uniform, is homogeneous and smooth, the opposite is rough; the larger is loud, the opposite is low volume. We must speak of the arguments relative to the concord of sound later in our discussion.

In the central part of the passage there are two definitions that seem limpid and clearly distinguishable, but this is an impression that will, to some extent, be given the lie. What is defined in 67b2–4 as the sensible of the organ of hearing: sound,[7] in 67b4–5 is the process of acoustic perception. At *Tim*. 67b2–5 there are various recurrent elements in the ancient theories of the production, diffusion and perception of sound. The term by which Plato defines sound – *plēgē* – is present in almost all the ancient reflections on sound; but the interesting fact is that identifying the sensible (object) of the hearing by its impact is not the only possibility and, in fact, in some cases the alternatives are a subject of discussion.

In Archytas' acoustic theory as it emerges in fragment 1 (the theory to which it is customary to refer when interpreting *Tim*. 67a–c) the impact is not identified with sound, but it is the necessary condition so that it be generated. In Heraclides' account of the Pythagorean musical reflections, the distinction between impact and sound surfaces with clarity, as does the role of *plēgē* in the creation of the acoustic stimulus and the perceptive process. When an impact is generated on the outside, a sound is set in motion from the impact to reach the hearing organ (Porph. *In Harm*. 30, 16–18). Although the idea that something in motion, generated by the impact and destined to strike the hearing re-evokes *Tim*. 67b2–4, we must recognise that the something does not have the same physiognomy in both theories.

[7] *Phōnē* in b2 seems to indicate sound in general (Taylor 1928, 476), but the analysis of its qualities in b6–c1 shows that Plato has in mind a sound that is definable in musical terms. Furthermore, it seems to me to be a question of a musical 'sound' in general and not only that produced by the voice (O'Brien 1997, 59 n. 2).

Thanks to the distinction between a sound in power and an actual sound, Aristotle is able to formulate in a precise manner the causal role of the impact: the *plēgē* is that which effectively produces the sound (*De an*. 419b9–11). A similar causal consideration recurs in a work of the Peripatetic school, the treatise *De audibilibus* (800a). While the Euclidean *Sectio canonis* opens with an expression that greatly recalls Archytas' reflection: *plēgē* – here associated with motion – is the condition necessary for the production of an object of hearing (148, 5–6). In some reflections sound is identified with the air, to which the notion of an impact is referred: they are the definitions given by Diogenes of Babylon (*ap*. Diog. Laert. VII, 55) and Aelianus (*ap*. Porph. *In Harm*. 33, 21–2). Aristides Quintilianus (5, 20–2) gives an account of a definition of this type, as well as another for which he has greater sympathy. He prefers the definition of sound as 'an impact of air' (*aeros plēgēn*), to 'air that has received an impact' (*aera peplēgmenon*) because the former definition correctly considers sound the modification that the body has received, while the latter considers sound the body itself that has undergone a certain modification. It is the same criticism that arises in Simplicius (*In Arist. Phys. Comm*. 426, 1) against one of the most famous definitions of sound as struck air, that of Diogenes of Babylon. The flaw in that definition consists in mistaking that which undergoes a modification – i.e. air that receives the impact (*ton peplēgmenon aera*) – with the modification, i.e. the impact itself (*hē plēgē*).[8]

In the definition in *Tim*. 67b2–4 sound is not 'air that has received an impact', but neither is it really a 'movement of air': this last definition which is to be found in Aristotle (*De an*. 420b11)[9] and which could be attributed, according to Theophrastus' testimony (*De sens*. 59), to the major part of that of the Presocratics.[10] In *Tim*. 67b2–4 the sound is a *plēgē diadidomenē hyp'aeros*: Plato seems to attribute to air (another fundamental element in the ancient reflections on sound and hearing) the function of means

[8] Exempt from this error is Ptolemy's definition, thanks to a small but substantial variation in the idea that sound is struck air: in *Harm*. 3, 2 he defines sound as 'a modification of air that has been struck'. And, according to the reasoning present in *De musica* by Aristides Quintilianus, Nicomachus' definition is also correct (*Ench*. 242, 20–1), that of sound as 'an impact of air that is uninterrupted until the hearing' and that of Adrastus (*ap*. Theon Sm. 50, 6–7) that, expressly citing Pythagorean theories, defines sound in a manner that is not dissimilar to Nicomachus': an impact of air that has been prevented from dispersing.

[9] Cf. *De sensu* 446b30–447a1, where it is not specified whether it is the air that displaces itself, and the sound is defined, in a more generic manner, as 'the motion of something that is displaced'. On sound and hearing in Aristotle, cf. Johansen 1997, ch. 3.

[10] The idea also appears in book XI, ch. 6 of the pseudo-Aristotelean *Problemata*, where sound is considered the effect of air that is moved. Whereas, in question 35a of book XIX we find a *reductio ad absurdum* put forward to demonstrate that sound is not the displacement of air or anything else: if this were the case, it would be sharper half way through the journey that it covers.

of transmission of the impact that is emitted from the sonorous body. Alongside air, in the Platonic definition, corporeal elements come into play such as the brain and the blood. With these, we run into the more relevant syntactic question of the expression that defines sound.

The genitives *enkephalou* and *haimatos* can depend on *dia* or be object genitives of *plēgēn*. In the first case, the role of the brain and blood in the transmission of sound is analogous to that of the ears: they constitute the means of passage of a shock destined to hit the soul. In the second case, brain and blood are the elements struck by the impact, before it reaches the soul. In the first sense, Aëtius interprets the theory (*Plac.* IV, 19, 1, *Dox. Graec.* 407–8) – *plēgēn hupo aeros di'ōtōn kai enkephalou kai haimatos mechri psychēs*, in the second, Theophrastus (*De sens.* 6; cf. also 85) – *phōnēn gar einai plēgēn hup'aeros enkephalou kai haimatos di'ōtōn mechri psychēs*.[11] Still, there exists perhaps a third possibility, compatible with Theophrastus' interpretation: to consider the two genitives dependent on *hypo*, thus imputing an analogous role to the brain and blood as that given to air, i.e. the agent from which the impact derives.[12] As we shall see, at *Tim.* 67a–c different features can be made out in the Presocratic theories on auditory perception and in some of these the brain assumes a role of importance. For Anaxagoras, auditory perception comes from sound reaching the brain and falling into the hollow bone that surrounds it (Theophr. *De sens.* 28); while for Diogenes of Apollonia, auditory perception occurs when there is movement, as air contained in the ears is moved by external air, and this movement is transmitted to the brain (Theophr. *De sens.* 40).[13] In both

[11] In agreement with the second interpretation are: Taylor (1928, 476–7); Cornford (1937, 275): '. . . the stroke inflicted by air on the brain and blood through the ears and passed on to the soul', Bury (1966, 173): '. . . a stroke transmitted through the ears, by the action of the air upon the brain and the blood, and reaching to the soul'; Brisson (1974, 445): 'Un choc, produit par l'air, sur le cerveau et le sang, à travers les oreilles, parvient jusqu'à l'âme' and, clearer still, in 1992, 178: '. . . le son est le choc que subissent, par l'action de l'air et par l'intermédiaire des oreilles, le cerveau et le sang, et qui est trasmis jusqu'à l'âme' and Barker (1989a, 61): '. . . an impact of air, coming through the ears and impinging on the brain and the blood, and passed on until it reaches the soul'; Zeyl (2000, 60): '. . . the percussion of the air by way of the ears upon the brain and the blood and transmitted to the soul'. For an argument in favour of this translation, see O'Brien 1997, who translates: 'Disons qu'un son est le choc infligé par l'air sur le cerveau et sur le sang, passant à travers les oreilles et trasmis jusqu'à l'âme.' Mansfeld (2005, 388–9) underlines the analogies between the expression used by Aëtius and that employed by Theophrastus. For a further definition of hearing on the basis of *Tim.* 67b, see Plut. *De fort.* 98b.

[12] Translations that appear to presuppose an interpretation of the sort are those of Rivaud (1963, 192): 'D'une manière générale, admettons que le son est le choc, transmis, à travers les oreilles, par l'intermédiaire de l'air, du cerveau et du sang, jusqu'à l'âme', and that of Fronterotta (2003, 337–9): 'Poniamo dunque, in generale, che il suono sia l'urto che si propaga attraverso le orecchie, per azione dell'aria del cervello e del sangue, fino all'anima.'

[13] The idea that, in every perceptive act, there is the passage of the sensations *pros ton enkephalon* can be found in Alcmeon (24 A5 DK). The importance of the brain in some ancient theories is

cases it seems to me that the brain is not the means of transmission of sound, but rather the end reaching which the sound produces sensation: a function comparable to that of the soul in Platonic theory. What's more, Diogenes, who understandably places the emphasis on air, clearly distinguishes between the role of air and that of the brain in the perceptive act.

As regards the blood, in the *Timaeus* its function as a flow that transmits sensations comes across clearly. In 77d6–e6, describing the circulation of blood in the head – hence precisely that interested by the definition of sound – Timaeus talks of 'a bond between the head and the body', capable of transmitting the effect of the sensations to the whole body from both parts. The reference to both sides of the body seems a very appropriate way to describe the case of auditory sensation: sounds, captured by the ears to right or left, are channelled in blood vessels and transmitted to the soul. This general consideration of blood circulation – that can also be linked to Presocratic theories[14] – seems to render plausible the hypothesis that in *Tim*. 67b2–4 the blood, like the air, carries out a function of transmitting the impact. All the same, the preceding reflections on the brain and the consideration that in most of the definitions of sound the air plays a particular role, which cannot be compared with that of other elements, does not seem to come down in favour of the hypothesis that in *Tim*. 67b the brain and blood have the function of transmitting the impact, in a manner that is similar to air.

As we note, the Presocratic theories employed to analyse the relationship between sound and the brain are analyses of auditory perception and not the object of hearing. In the Platonic definition of sound the role of the brain cannot be correctly understood without weighing up the passage about sound in the human body that is the auditory process – and that confirms the suspicion that the distinction between sound and perception is not to be taken on board in a rigid sense. In this context, it is interesting to note that among Theophrastus' objections to the Platonic definition of *phōnē* in *De sens*. 91, there also appears the objection of presenting itself more as a definition of the perceptive process than of sound and the voice.

confirmed by the controversy that the author of the Hippocratic treatise *De carnibus* (xv) directs at those who maintain that in acoustic perception it is the brain that resonates: this condition cannot happen because of the damp consistency of the brain (as Aristotle would say, the brain, like wool or a sponge, cannot produce an actual sound, cf. *De an*. 419b6–9). For an overall picture of the Presocratic theories on hearing, see Sassi 1978, 109–19.

[14] On Diogenes of Apollonia, see Aristotle's testimony in *Hist. an*. III, 2, 511b30–512b11; cf. Laks 1983, 57–70; Lloyd 2006. A connection between thought and blood is raised by Empedocles, see 31 A86 and B105. For an underlining of the analogies between Platonic acoustic perception and the reflection of Diogenes of Apollonia, see Brisson 1999, 165.

Whatever the syntactic value might be and whatever the role in the perceptive process of *enkephalos* and *haima*, both in the text and in the propagation of sound, they occupy the space that separates the ears from the soul. Once again we are in the presence of two genitives – *ōtōn* and *psychēs* – precisely dependent in this case on two prepositions – respectively *dia* and *mechri*. But a consideration of these prepositions in turn raises numerous questions. The spatial value that the preposition *dia* bears seems to define relatively clearly the function and limits of the ears, conferring on them the role of access duct of *phōnē* to the body. In this regard, Burnyeat's observation (1976, 41), on the Platonic theory of perception in general, seems to me particularly appropriate: he posits that Plato does not seem to perceive tension between spatial and instrumental language. The sound passes 'through the ears' as if 'through a funnel', to use the expression in *Resp*. 411a6, and to re-evoke the passivity of the auditory apparatus that seems present in the definition in *Tim*. 67b2–4 as well.[15] And yet in the *Republic*, the idea that the ears only have the function of liaison seems more a provocation – not by chance presented during a controversy against indulging in listening to harmful music – than a lucid acquisition. Where the function of the ears is evaluated with detachment, we do not register the precise use of the preposition *dia* to dispel the doubt that the ears are something more than an access duct (352e7–8).

Behind the use of the expression 'through the ears' (*di'ōtōn*) in *Tim*. 67b2 is the subtle distinction elaborated in the *Theaetetus* (184b8–c9) between 'to listen with' and 'to listen through' and the idea that it is the use of the preposition *dia* and not the dative that best expresses the role of the senses in general (above, pp. 99–100). The protagonist of perception becomes the *psychē* as it elaborates and articulates those sensations introduced by the sense organs, or reveals itself to be incapable of such operations, yet remains the end to which the affections tend (186c1–2: *hosa dia tou sōmatos pathēmata epi tēn psychēn teinei*). The *Timaeus* highlights the full dramatic implication of the soul that becomes the point of arrival for the sensible solicitations introduced through the body (43c4–5): the price the soul pays when acquiring contact with becoming is the loss of its original structure. But in the same dialogue the arrival of perceptive stimuli in the *psychē* seems a determining moment in the perceptive process itself. Both in the case

[15] The psychophysical interpretation of the ears as two ducts that allow the access of the sensible contents to the soul is certainly upheld, from an anatomical point of view, by the lack of reference to the tympanic membrane (Cornford 1937, 275; Moutsopoulos 1959, 31). It is interesting to note that the image of the ear as point of access is also evoked in fr. 1 of Archytas. Explaining why excessively great sounds are not heard, Archytas observes that these do not insinuate themselves into the hearing, rather in the case of a jar with a restricted opening, when too much is poured onto it, nothing actually goes in just as nothing is poured into narrow-mouthed vessels.

of hearing (67b2–3: *di' ōtōn . . . mechri psychēs*), and in that of sight (45d2: *eis hapan to sōma mechri tēs psychēs*), to define the perceptive mechanisms it is necessary to make reference to the soul. In the preposition *dia*, there is both the discomfort of the *psychē* linked to a foreign dimension and the indication of the instrumental relationship that must be established between soul and sensibility.

Now, the treatment of perception – the embodiment and interaction between soul and body in the *Timaeus* – carries the clear (although certainly not straightforward) idea that it is the rational soul itself that assumes an important role in the perceptive event. Thus, the use of the preposition *dia* fully reveals its meaning if scrutinised in relation to the rapport that the rational soul entertains with the senses. This encourages us to think that in 67b2–3, when Timaeus contemplates the psychophysical dynamic set off by sound, he thinks of a passage from the ears to the rational soul. But this means that the involvement of the *psychē* does not precisely concern perception, but rather some different reaction to the sensible stimuli, a reaction that is characteristic of rationality (Barker 2000, 87).

In the complexity of an expression that calls into question body and soul, sensation and thought, the brief definition of sound in *Tim.* 67b2–3 draws attention to the head, an extraordinary part of the body. The head, being the structure marked by the presence of the rational soul, when receiving sound, cannot but make of it a phenomenon that is physical and psychic at the same time: a fact of both necessity and reason, to use the *Timaeus*' terminology. And the elements comprised in the space delimited by *di'ōtōn* and *mechri psychēs* – brain and blood – are part of the psychophysical dimension defined by the relationship through which soul and body receive sensations. Listing the naturalistic theories in which he might have got lost, in *Phaed.* 96b4–8 Socrates refers to the theory according to which it is the brain that provides the sensations of hearing, sight and smell.[16] We can certainly consider the reference to the brain in *Tim.* 67b as a vestige of the ancient theories on sound and perception; but the distinction between primary and secondary causes,[17] laid out in the dialogue precisely referring to sight and hearing, and the continuity that

[16] The reference could be to Alcmeon's theory (24 A5), according to which all the sensations have a connection with the brain; a displacement of the brain compromises the perceptive faculty, blocking the ducts, through which the sensations pass. Further on (98d6–e1), distancing himself from the philosophy of Anaxagoras, Socrates indicates the other physical causes tied to the sphere of hearing as causes of his discussion.

[17] It is without doubt true that the *aitiai* of which Timaeus speaks apropos of hearing in 67b1 are the necessary and secondary causes, and that the true causes of hearing were identified in 47c–e (Brisson 1992, 264 n. 559); but it is also true that the two passages represent different aspects of the same reflection on the value of musical sound and the faculty of receiving it.

ties the body and soul in sound's journey compel us to evaluate the acoustic theory of *Tim*. 67a–c in another manner as well. We should consider it to be the product of the combination of traditional ideas on auditory perception and acoustic–musical theories of sound on the one hand, and on the other the 'psychologisation' of the perceptive act, characteristic of the final phase of Plato's production.[18]

The perceptive process of listening (b4–5)[19] is described as a motion – produced by the *plēgē* of which sound consists[20] – that comes into existence in the head and ends its existence in the area of the liver. The head is again in the foreground, and perhaps more relevantly: the process of hearing has its point of departure in the head. Hence, to listen is the result of a second movement, entirely within the body and the soul, and set off by the rational soul itself (Barker 2000, 87). It seems to me that in *Tim*. 67a–c a distinction between two movements – one external and one internal – is linked to the two definitions (of sound and hearing), without them superimposing upon one another. The first sets out from the sonorous body and concludes at the threshold of the auditory apparatus, the second begins at the ears and travels through the most part of the body (for a similar distinction, see Cornford 1937, 321–2). The idea that sound crosses the body and the singular reference to the liver raise different questions. Again the comparison with traditional ideas may throw light on the acoustic theory in *Tim*. 67a–c: in particular, the comparison with the idea that sound, like breathing, is admitted through the ears and passes to the chest and the liver.[21] But once again we are presented with the need to

[18] Cf. *Tim*. 64a2–65b3. See *Phil*. 33d2–34a9, where Socrates shows that there is sensation only when the affection does not exhaust itself in the body, but reaches the soul too, and moves the soul and body in a common movement. The lack of involvement of the soul in corporeal motion set off by the attachment is 'absence of sensation' (*anaisthēsian*).

[19] As Moutsopoulos underlines (1959, 31 n. 2), explaining his use of the term 'audition' to translate *akoēn* in b5, here Plato seems really to be referring to the process itself through which one hears. It concerns what Aristotle in *De an*. 425b30–426a1 will define as 'actual hearing' and for which he will employ the term *akousin*. Cf. Ganson (2005, 14), for whom, in *Tim*. 67b Plato seems to identify sound with an effect on the body.

[20] When commenting on the *Timaeus* (*ap*. Porph. *In Harm*. 33, 21–5), Aelianus asserts that the movement of the impact, when the sense of hearing is struck, is the *cause* of the affection: it is not the motion itself that *is* the affection. But not by chance, here Aelianus makes reference to the Epicurean idea that before reaching hearing the motions are 'quasi-sounds' (cf. Epicurus *Ad Herod*. 46–53). Cf. Heraclides *ap*. Porph. *In Harm*. 30, 16–19: when an impact is produced outside, a sound moves from the impact until it comes to the hearing; on arrival it moves the hearing and produces a perception in it.

[21] Onians (1951, 91–114) sees a trace of these ideas, in particular the idea that sound passes from the ears to the lungs, in *Phaedr*. 235c2–d3 as well, where Socrates expresses the sensation of being 'chest full' of other people's opinions on love. In this passage there appears, among other things, a further reference to the auditory apparatus as an access duct to the *psychē*: Socrates declares that he has been

weigh up such a theory in the light of the relationship between *psychē* and body that we find in the *Timaeus*.

The culmination of the second movement (just as the rational soul is that of the first) is the region of the liver, which is in turn the home of another soul: the appetitive soul. Conceived to bring the voice of reason to the *epithymētikon* and translate the contents of thought into the language that the appetitive element understands,[22] the liver in the *Timaeus* is the organ that contributes to prevent the physical and ontological distance between the rational soul and the appetitive soul transforming itself into incommunicability (71a–d). Acting as a mirror, it reflects the messages of reason, but at the same time elaborates them, transforming them from 'impressions' (*typoi*) into 'images' (*eidōla*, *phantasmata*). We can at least hypothesise that the liver is required to carry out an analogous role in the acoustic theory of 67a–c as well. Recalling the function that the organ has in relation to material substances, we could argue that it handles the 'metabolising' music that comes from the head, 'impressing' the appetitive soul with sonorous images that are the translation of the cerebral musical contents.[23] It concerns the management of a sonorous material endowed with a representative content, and the job of the liver, thus understood, certainly links itself to the complex theme of the theory of musical mimesis, lighting up some aspects of it. In this way, music too, through the images into which the liver translates it, enters to become part of the activity of divination that is another beacon lighting up the obscurity of the entrails where the appetitive soul lodges. From this point of view, we can distinguish the two levels of reception of music on the basis of the possibility or not of launching a rational work on the musical *eidōla* in which the liver translates the sound that strikes it.[24]

filled 'like a jar' of those opinions 'through hearing'. A curious correlation between hearing and breathing can be found in Alcmeon's theory, in the observation that goats breathe through their ears (24 A7).

[22] On the possibility of reason intervening on the non-rational components with an effective 'persuasive' action, see recently Carone 2007.

[23] Passing from the visual metaphor – the mirror and the reflected images – with which the role of the liver is described, to metaphors concerning the auditory dimension, the liver, in its smoothness (71b2: *leion*), can be likened to one of the polished bodies that reflect sound in the form of an echo. An assimilation of the visual phenomena of reflection and sounds rendered by the echoes, under the category of phenomena of 'refraction' (*anaklasis*), is put forward by Aristotle in *An. post.* 98a27–9.

[24] For this interpretation of the role of the liver in the reception of music in the *Timaeus*, see the reflections, previously referred to on several occasions, in Barker 2000, above all 93–8. For Taylor (1928, 477) the fact that in 67b5 the reaction to auditory sensation has got as far as the liver serves to take account of the 'shock' obtained, within the corporeal system, by phenomena like 'unfamiliar noises' or phenomena that indicate the presence of something hostile to the organism (for example, 'the squeak of a pencil on a slate'). But in *Tim.* 67a–c, as previously indicated, it seems to be a question of sounds and not noises.

As a result, *Tim*. 67b2–5 presents a description of sound and its reception in which the physical, physiological and psychic dimensions overlap one another. The perception of a sound – of a physical object that cannot be defined without turning to the physiological and psychological mechanisms of the sentient body that takes it in – is a movement of the body and the soul, struck by the shocks that the impact of sound emits. After all, the treatment of hearing in 67a–c is part of the analysis of the *pathēmata* solicited by the bodies (61c–68d), an analysis that sets out from the realisation of the strict relationship between the perceptive process and the psychophysical structure of man: it is not possible to speak of sensation without dealing with 'the generation of flesh, of that which regards the flesh and of the mortal part of the soul' (61c7–d2). The treatment develops by confirming and going deeper into this theme: the *pathēmata* in question are the result of the meeting between sensible and sentience. Once again we can make out the reflections of the *Theaetetus* behind a theme in the *Timaeus*, in particular the idea (*Theaet*. 153d–154b, 156a–157a, 159c–e, 182a–b) that some qualities of bodies do not exist prior to and outside the meeting with the sentient subject, as objective properties of the sensible, but originate from the perceptive process itself,[25] although it is not correct to think the two reflections are identical and assimilate the *pathēmata* in the *Timaeus* to the *sensibilia* in the *Theaetetus* (O'Brien 1984, 124–43).

Despite the initial distinction, the impossibility of keeping the object of hearing separate from the perceptive process – in the analysis of the mechanisms of acoustic perception – emerges in the first part of the treatment in *Tim*. 67a–c and finds confirmation in the final comments. They are dedicated to the forms that *kinēsis*, in which the process of hearing consists, can assume within the body. It concerns a description of the most relevant attributes of sound in the acoustic and musical theories: high pitch and low pitch, smoothness and roughness, loudness and softness; but Timaeus introduces them while continuing to speak of the internal movement that is hearing. Now, it is clear that such qualities are the qualities of sound, but of sound *as it is perceived*. After all, in relation to *Tim*. 67a–c, beyond the body and perceptive dimension that involves the body and soul it does not seem correct to speak of sounds, but only of movements:[26] sound is

[25] Cf. *Theaet*. 156c1–2, where there is affirmation that 'sounds are born with hearing'. In general, on the theory of perception in the *Theaetetus* and the relationship between perceived and he who perceives, see Modrak 1981. For an alternative interpretation, cf. Silverman 1990, 149–58, for which in the *Timaeus* the sensible qualities are the objective properties of physical bodies and the perceptive act is an autonomous act that does not require a contribution of rationality.

[26] It might be of interest to note the expressions with which Galileo Galilei will express the idea that certain qualities of the sensible depend on the perceiving subject (*Il Saggiatore* 48, 27): ' . . . e stimo

properly sound only when it enters the body and touches the soul (Barker 2000, 86–7, 96–7). Hence, the qualities of sound are nothing but the effect that a certain movement provokes in the solicited psychophysical apparatus: for example, a high-pitched sound is the result of a perceptive process characterised by a rapid movement.[27]

In *Tim*. 80a3–4, in a more explicit manner still, Plato will refer to sounds that 'appear high pitched and low pitched', confirming that the dimension of the display to the senses is the only one in which the perceptive characteristics of sounds exist. In this context it is interesting to compare a passage of the *Protagoras* (356c4–8) in which Socrates, suggesting the necessity of a 'metric of pleasure' – i.e. a science that measures pleasure and pain with precision – turns to examples relative to sight and hearing, to show the necessity of making the two opposed sensations clear. Something of the same size appears greater to the sight from close up and smaller from further away; equally the *same* voices seem louder from close up and softer from further away. Unlike *Tim*. 67c1, where the quality of the volume of a sound makes up part of those sensible characteristics that are all one with the perceptive process itself, in *Prot*. 356c4–8 it seems to have its own objectivity. And the appearing, that in the *Timaeus* is the manner in which the attributes of a sound exist, is here the way in which hearing, perhaps deceiving itself, takes them in: they are the 'same voices', that is the voices at the same volume, that appear, louder or softer, through mechanisms tied to the diffusion and perception of sound. After all, the use of the comparative only makes sense in relation to the point of reference that is the objective intensity of the *phōnē*.

Apropos of the interaction between sound and the perceptive act in the *Timaeus*, another interesting comparison to be made is that with fragment 1 of Archytas. The Pythagorean affirms that of the sounds 'that fall back into perception, those that arrive with speed and strength from the impact,

che, tolti via gli orecchi le lingue e i nasi, restino bene le figure i numeri e i moti, ma non già gli odori né i sapori né i suoni, li quali fuor dell'animal vivente non credo che sieno altro che nomi . . . ' (see also 48, 15 and 48, 30). The expression that Galileo uses to introduce the mechanism of acoustic perception and, at the same time, of the coming into existence of sensible sound, could well be used to explain that motion of sound in the human body, in which the acoustic sensation consists according to *Tim*. 67b 4–5: ' . . . i suoni allora son *fatti*, e *sentiti* in noi . . . ' (48, 25 my italics).

[27] Consequently, I prefer to avoid the translation: 'a rapid motion produces a high-pitched sound . . . ' (see Cornford 1937, 275; Rivaud 1963, 192; Bury 1966, 173; Brisson 1992, 178–9; Fronterotta 2003, 339; Zeyl 2000, 60–1). In *De an*. 425b26–426a26 Aristotle formulates clarifications with regard to the idea (attributed by him to *proteron physiologoi*) that the qualities of the sensible depend on the perceptive process: this is true only in relation to actual hearing and sound. It is interesting to note that in the *Timaeus* the dependence on the perceptive dimension is also argued in relation to properties like lightness and heaviness.

appear high pitched, while those that arrive slowly and faintly, seem to be low pitched' (47 B1 DK, 433, 13–16). The qualities of high and low pitch are not present as objective characteristics of sound, but as the effect (*phainetai*, *dokounti*) that brings an objective characteristic on perception, such as the speed with which the sound reaches its destination (presumably the perceptive apparatus, since Archytas is talking precisely about the sounds *potipiptonta poti tan aisthasin*). A sound that *arrives* speedily, *seems* high pitched, one that *arrives* slowly, *seems* low pitched. And yet, Archytas points out the moment in which the kinetic quality of sound translates into perceptive quality and in so doing he makes a clear distinction between the sensible sound and the perceptive process. In fr. 1 there is no definition of sound: Archytas limits himself to affirming the *communis opinio* that there cannot be sound without shock.[28] But, from the cases of non-perceptible sounds that he illustrates, it is clear he presupposes a definition of sound that prescinds from the perceptive process. For Archytas, sound does not have to be heard to exist in its own qualities (Huffman 2005, 135–6). Thus the affirmations that express the relationship between speed and pitch – a relationship that emerges, in *Tim*. 67a–c, as one of the most obvious themes of influence in Archytas' theory – present particularities that are worth taking on board. The movement that Archytas talks about, saying that *ha tacheia kinasis oxyn poiei, ha de bradeia baryn ton achon* – i.e. the movement of sound – becomes at *Tim*. 67b6, *hosē d'autēs tacheia, oxeian, hosē de bradytera, baryteran* – i.e. the movement that is auditory sensation.[29]

As we shall see during the analysis of *Tim*. 80a–b, Plato really thinks that the perceived pitch of a sound depends on the speed with which it spreads; but it is important to note that in *Tim*. 67b–c the objective dimension of the sensible sound and the subjective dimension of the perceptive act overlap, and the spreading movement of sound becomes all one with the movement of perception. In this way, in 67b–c the fact does not emerge with great clarity that Plato, perhaps like Archytas before him, makes the error of thinking that the pitch of a sound depends on the speed with which it spreads;[30] on the contrary, perhaps there appear analogies with

[28] Archytas does not seem to connect this acquisition only to the Pythagorean circle: he is reporting the opinion of 'many who dedicate themselves to the sciences', and the intention of precisely indicating the Pythagoreans would perhaps have taken on a clearer form. Huffman is of this opinion (2005, 127, 129) and considers the idea in which there is no sound without shock a widespread belief rather than the idea of a particular doctrine. Conversely, Ciancaglini (1998, 219–20) interprets *toi peri ta mathēmata* as a reference to the 'matematici' as opposed to the 'acusmatici'.

[29] See Timpanaro Cardini 1958–64, vol. II, 364–5.

[30] Ciancaglini (1998, 232–4) maintains that the error is not Archytas' but Plato's and that the custom of attributing it to Archytas derives from the close link between the doctrine of the Pythagorean

reflections that this imprecision endeavours to correct. Correlating the pitch to the speed of propagation is a common error in ancient acoustics[31] that registers as an exception the idea put forward in *Sectio canonis* (148, 11–149, 3) in which it is the frequency of the vibrations that determines the pitch. Nonetheless, between the intuition of *Sectio canonis* and Plato's mistake, there are attempts to dig deeper, such as that in *De an*. 420a30–b4, where Aristotle, concentrating on the perceptible differences in actual sound, asserts that the terms high pitched and low pitched are used in a metaphorical sense with reference to the sphere of touch. In fact, high pitched, like a prick, solicits sensation intensely in little time, while low pitched, like a thrust, solicits it weakly over a long time. Hence, for Aristotle it is not that high pitched is fast, or low pitched slow, but the movement of the one is of a certain type because of rapidity, while that of the other is of another type because of its slowness: it is *per accidens* that high pitched is fast and low pitched slow.[32] Now, it is highly interesting to note that at *Tim*. 67b6 the attributes fast and slow are referred to the movement which is the auditory sensation (*autēs*). In a similar manner to Aristotle in *De anima*, Plato thinks of the change that sensation undergoes when subject to the stimulus of a sound. The sensation of a high-pitched sound is a rapid movement within the body, that of a low-pitched sound, a slow movement. That this internal movement of sensation, with its qualities, is none other than the continuation in the body of the external movement

and the acoustic theories of the *Timaeus*. But the reading of some passages of fr. 1 necessary to support this thesis seems rather difficult. In 47 B1 DK, 433, 13–16 one should attribute the meaning of 'they come from' to *paraginetai*, rather than that of 'they arrive', obliging one to note – as indeed Ciancaglini does – that in place of the adverbs *tachy*, *ischyrōs*, *bradeōs* and *asthenōs* one would expect adjectives attributed to *plēgai*. Then, as regards the expression *toi oxeis phthongoi tachion kineontai, oi de bareis bradion* (435, 13–14) – that seems to allude unequivocally to the idea that the speed with which sounds move determines their pitch – one should interpret it giving *kineontai* the passive value of 'are moved', in the sense that high-pitched sounds 'are produced by movement' that are faster, and the low-pitched by slower motions.

[31] The idea seems to be wholeheartedly expressed by the authors of various chapters of books XI (6, 13, 16) and XIX (21, 35, 37, 50) of the pseudo-Aristotelian *Problemata* and *De audibilibus* (803a, which however distinguishes the speed, responsible for pitch, from strength, which determines length; indistinct aspects in Archytas' theory, cf. Barker 1989a, 105 n. 28). Theophrastus (fr. 716) makes an outright rejection, attempting to demonstrate the absurdity of the theory in which pitch is the quantitive attribute of sound, placing the accent on the qualitative aspect. And yet, the idea appears in Porphyry's *Commentary on Ptolemy's Harmonics*, attributed to Aelianus (33, 28–9; 35, 13–14; 36, 9–10; however we note that in none of the three places does Aelianus identify speed and pitch, finding instead a relationship of cause–effect between the two factors) and in Theon Sm. 50, 9–11, attributed to Adrastus. In Plato's work, an allusion to the link between the speed and pitch of sound also seems to be present in *Polit*. 306c10–d1, where he speaks of *oxytēta kai tachos*, also in the movement *kata phōnēs*.

[32] The passage in *De anima* also seems a clarification of *Top*. 107a11–17, where Aristotle states: 'the high-pitched sound is swift, as the harmonicists with mathematical approach say'.

of propagation of the sound, and that Plato considers the high pitched a sound that spreads quickly, low pitched that which spreads slowly is undisputed, as we shall see in *Tim*. 80a–b.

If the first of the correlations of movement and sound in *Tim*. 67b–c presents a Plato who is a not very acute observer of acoustic phenomena, the rest of the treatment of the qualities of the movement of sound shows a Plato capable of highly subtle distinctions, almost anticipating the nuances highlighted by the analysis on sound that will develop in the Peripatetic circle. The second correlation between quality of movement and perceptive result concerns smoothness and roughness of a sound: a uniform perceptive movement (*homoian*) gives the sensation of a smooth (*homalēn*) and sweet (*leian*) sound, while a contrary movement produces the perception of a harsh sound (*tracheian*). It concerns the distinction that Aristotle, in *De gen. an*. v, 7, 788a23–7, connects to the characteristics of the organ that produces sound (in this case the trachea, as we are dealing with the voice); he observes the phenomenon from the point of view of the sound coming into existence rather than from the point of view of perception: *trachyphōnia* and *leia phōnē* are the result of similar characteristics in the organ through which the voice passes. Analogous attention to the physiological mechanisms of voice production and analogous correlation between quality of sound and characteristics of the producing organ are found in ps.-Arist. *Probl*. xi, 11, where the author endeavours to explain why someone who has not slept would have a hoarse voice: the ruggedness is traced to the absence of uniformity.

And yet, it is in *De audibilibus* that the most interesting reflection on smoothness and roughness appears, in relation to *Tim*. 67b–c. According to the author (803b2–18), the phenomenon of roughness of sounds happens when there is not only one *plēgē* of all the air, but it is fragmented into small and frequent blows that strike the hearing separately, creating a fragmented sensation. While the effect of an impact is fading, that of the next impact is intervening, so that the contact with hearing is not homogenous, just as happens between rough objects and the sense of touch. The connection – which we have already identified in Aristotle and in *Probl*. xi, 11 – reappears between the quality of the cause that determines the sound and the quality of the sound itself; after all, in this work, not long after the above-mentioned passage, there is clear affirmation that the perceptible qualities of sound are identical to the qualities of the causes that determine the impact (803b26–7, see also Ptol. *Harm*. 7, 5–8). However, the explanation of the roughness of sounds refers to a phenomenon – that of hearing solicited by the work of acoustic stimuli that are set close together but not simultaneous – that

is present in the *Timaeus* and that it is perhaps worthwhile considering during an analysis of the roughness and smoothness of sounds.

The notion of *homoiotēs* that is central in *Tim.* 67b7–c1, represents one of the fundamental and most complex concepts of the other passage in the *Timaeus* dedicated to questions of acoustics, 80a–b. There Plato takes on the theme of the reciprocal relationship that is established, in the perceptive act, between two *anharmostoi* or *symphōnoi* sounds, and he associates these characteristics with the absence or presence of uniformity of movement that the sounds provoke in us (80a4–6). Thus, the attention is turned to the same phase of the journey of sound analysed in 67b: the movement within the human body, a movement that is perception. Certainly, in 80a uniformity and its absence concern the relationships between sounds, but a fact seems useful to analyse the reference of 67b–c: *homoiotēs* and *anhomoiotēs* are characteristics with which the shocks of sound pervade the soul and the body producing sensation – in the case of one sound, of smoothness and roughness, in the case of two simultaneous sounds, of *anharmostia* or concord.

It is not surprising that the analysis of the second group of characteristics in *Tim.* 67b–c invites a comparison with the reflection on simultaneous sounds in *Tim.* 80a–b, if we consider, for example, a passage from Cleonides' *Introduction to Harmonics*, in which roughness is evoked to explain the effect on hearing of two dissonant sounds: these do not blend and 'they irritate the hearing' (188, 2: *trachynthēnai tēn akoēn*). Recourse to perceptive answers to describe the phenomenon of simultaneous sounds is not an unusual aspect in a musical theory that defines the best meeting of sounds – that which produces concord – precisely through perception. However, it is interesting to note that the notion of 'roughness', evoked by dissonant sounds that 'irritate' the acoustic apparatus, causing inconvenience, also discloses the hedonistic aspect of the subjective dimension of hearing. It is also evident in *Tim.* 67b–c, that the second couple of qualities – smoothness and roughness – refers not only, as all the qualities of sound, to the perceptive process in terms of hearing, but also in terms of the hedonistic response that this arouses. Homogeneity of movement translates into a pleasurable sensation, lack of homogeneity into a disagreeable one.[33] So, it does not seem to be by chance that the same adjective used to express one of the two qualities of sound – *leios* – is used, in the *Philebus*

[33] Anyway it is a case of acoustic solicitations that can be defined in musical terms. Taylor's idea (1928, 477) that the opposition is between a note of a defined pitch, resulting from uniform vibrations, and a noise of undefined pitch, resulting from irregular motions, does not seem convincing to me.

(51d6–9), to characterise sounds that are capable of engendering pure pleasure. Sounds that are 'sweet and clear, that produce a single limpid melody and that are beautiful not only in relation to other things, but for themselves' are sensible stimuli – as are colours, figures and smells (51b3–7) – beautiful in their simplicity and capable of providing replenishment, without pain, which is pure pleasure.[34]

The final pair of sound qualities in *Tim*. 67b–c concerns volume: a large movement determines a loud sound, a small movement the perception of a soft sound. It is a question of a reflection that cannot be taken for granted in the acoustic of the time, nor indeed can it be taken for granted to identify the strength or weakness of a sound distinguishing these qualities from those relative to pitch. Under this profile, *Tim*. 67c1 means going a step beyond Archytas' theory, in which there does not seem to be an awareness of the distinction between pitch and volume,[35] and as an anticipation of the subtle distinctions developed in *De gen. an*. v, 7, 788a. Here Aristotle considers a problem that is inevitable in a theory such as that of Archytas: to explain phenomena like the high-pitched, loud voice and the low-pitched, weak voice, given that high pitched is such because the movement is fast and it is a little quantity that is started swiftly, the low-pitched sound is such because it is slow and it is a large quantity that is started slowly. The solution – explains Aristotle – derives from understanding that 'large' and 'small', 'a lot' and 'a little' are used both in an absolute sense and in a relative sense. Both *megalophōnia* and *baryphōnia* involve the movement of a lot, but one in an absolute sense, the other in a relative sense; likewise, both *mikrophōnia* and *oxyphōnia* derive from the movement of a little, but in the one case that is true in an absolute sense, and in the other in a relative sense.[36]

[34] The large part of the sensibles, whose perceptions produce in *Phil*. 51a–e pure pleasure – colours, figures, sounds – are, in *Resp*. 476b5, the objects of interest of the *philēkooi* and *philotheamones*, that is those who are able to appreciate sundry beautiful phenomena, but are incapable of grasping the nature of beauty in itself. In the *Republic* (584b1–8) the only sensibles named in the reflection of pure pleasures are those of smell, because they come into existence suddenly and with great intensity; while in *Phil*. 51e1–4 the olfactory pleasures belong to a 'less divine genus' than those connected to sight and hearing. But it is a type of pleasure that lends itself well to exemplify the absence of a correlation with pain, as shown in a passage in the *Timaeus* (65a1–6), where Plato thinks of the objects of the olfactory sense ('nice smells'), describing the very pleasant situation, in which an organ slowly empties itself, hence without causing pain 'to the mortal part of the soul', and then it suddenly fills itself and in great quantity.

[35] Barker 1989a, 61 n. 28; Huffman 2005, 113–14, 143.

[36] The relationship between pitch and quantity of air set in motion appears in *Probl*. xi, 13, 14, 15, 16, 19, 20, 21, 32, 34 and xix, 37. In this final passage the author endeavours to explain why, if high pitched is fast because of the inferior quantity of displaced air and the low pitched is slow because of the greater quantity, it is more difficult to sing in high-pitched registers. The proposed solution

So, despite the misunderstanding with which it opens – where it confuses speed of vibration with speed of propagation and links pitch to the latter – the treatment in *Tim*. 67b6–c1 presents an analysis of sound that is complex if brief. You just need to compare it to a mature theoretical elaboration, such as that put forward by Nicomachus (*Ench.* 243, 5–10), which distinguishes in sound: strength, associated with a large quantity (*pollou . . . megalēn*); weakness, associated with a small amount (*oligou de mikran*); smoothness, identified as homogeneity (*homalou men leian*); roughness, associated with absence of homogeneity (*anhōmalou de tracheian*); and lastly pitch, high pitch being associated with a rapid transmission of the impact (*tacheōs de oxeian*) and low pitch with a slow transmission (*bradeōs men enechthentos bareian*).

Physics, physiology and psychology: concord and perception

During a treatment of breathing mechanisms, Timaeus proffers various phenomena that are explained through the same process as breathing: a circular movement in the absence of a void, by means of *periōsis*. This mechanism also stands to explain the *symphōnia* of sounds, an interesting acoustic phenomenon, of which Timaeus introduced the treatment back in 67c2–3. The words with which he concludes his analysis of sound in 67a–c are more than a promise or a formal expedient to move onto something else. They indicate that the second reflection on questions of acoustics – that of 80a–b – is strictly connected to the previous one, although the needs of the cosmogonic disclosure impose a separation of the two reflections. Accordingly, it will be necessary to keep in mind the reflections at 67a–c on sound and hearing in the analysis of concord and the perceptive mechanisms that it determines (see Cornford 1937, 320–6). In 79e–80b *symphōnia* is treated, in a relatively curious manner, with phenomena such as swallowing, ballistics and objects like the cupping-glass;[37] but more space and importance is dedicated to *symphōnia* than to the other phenomena.

seems to be based on the distinction between having by nature a high-pitched voice and to sing in a high pitch: the former situation is an indication of weakness, because it shows that one is able to move only a small amount of air, while the latter is a symptom of strength, because in order to move air rapidly it is necessary to do it with vigour. A reflection that is even more lucid on the relationship between the strength of the impulse of sound and the pitch of the sound is that of Theophrastus (716, 50–64). The distinction between pitch and volume is also present in Adrastus' theory that links the volume to the energy of the impact and the movement (*ap*. Theon Sm. 50, 9–12).

[37] Cf. Plut. *Plat. quaest*. VII, 1004d–1006b. On the impossibility of movement in a void, with reference to the motion of projectiles and to the *antiperistasis* as a possible explanation, see Arist. *Phys*. 215a, 267a15–20.

Here too, we will make our point of departure a reading and translation of the passage.

Καὶ δὴ καὶ τὰ τῶν περὶ τὰς ἰατρικὰς σικύας παθημάτων αἴτια καὶ τὰ τῆς καταπόσεως τά τε τῶν ῥιπτουμένων, ὅσα ἀφεθέντα μετέωρα καὶ ὅσα ἐπὶ γῆς φέρεται, ταύτῃ διωκτέον, καὶ ὅσοι φθόγγοι ταχεῖς τε καὶ βραδεῖς ὀξεῖς τε καὶ βαρεῖς φαίνονται, τοτὲ μὲν ἀνάρμοστοι φερόμενοι δι' ἀνομοιότητα τῆς ἐν ἡμῖν ὑπ' αὐτῶν κινήσεως, τοτὲ δὲ σύμφωνοι δι' ὁμοιότητα. τὰς γὰρ τῶν προτέρων καὶ θαττόνων οἱ βραδύτεροι κινήσεις ἀποπαυομένας ἤδη τε εἰς ὅμοιον ἐληλυθυίας, αἷς ὕστερον αὐτοὶ προσφερόμενοι κινοῦσιν ἐκείνας, καταλαμβάνουσιν, καταλαμβάνοντες δὲ οὐκ ἄλλην ἐπεμβάλλοντες ἀνετάραξαν κίνησιν, ἀλλ' ἀρχὴν βραδυτέρας φορᾶς κατὰ τὴν τῆς θάττονος, ἀπολῃγούσης δέ, ὁμοιότητα προσάψαντες, μίαν ἐξ ὀξείας καὶ βαρείας συνεκέρασαντο πάθην. (*Tim.* 79e10–80b5)

Furthermore, the causes of the phenomena associated with medical cupping-glasses too and those of swallowing and of things that are thrown, those that are thrown into the air and those that travel along the ground, must be described in the same manner, and also the fast and slow sounds, that appear high pitched and low pitched, that sometimes move in an inharmonious way, because of the lack of uniformity of the movement caused by these in us, sometimes on the other hand in concord because of the uniformity. Indeed, the slower sounds catch up with the movements of the first and faster sounds when these are already dying and have come to uniformity with the movements with which the slower sounds, arriving later, move those that are faster; when they catch up with them they do not create disorder, introducing a different movement, but adapting the beginning of the slower movement in conformity with the faster, that is however toning down, they create a single impression of high and low pitched.

Of the qualities of sound in 67b–c, here only the high and low pitched make an appearance. They are clearly associated with the perceptive process (80a4: *phainontai*), in that they are the properties of 'heard' sound. Nonetheless, with respect to 67b–c, it seems that here there is the intention to distinguish movement of sound (whether it is external or internal to the human body) from the consequent qualities. This seems to emerge in the expression *kai hosoi phthongoi tacheis te kai bradeis oxeis te kai bareis phainontai*, in which *tacheis* and *bradeis* should be read as adjectives of *phthongoi* and only *oxeis* and *bareis* as nominal parts of *phainontai*.[38]

[38] See Cornford 1937, 320; Bury 1966, 213; Barker 1989a, 62; Brisson 1992, 199; Zeyl 2000, 75. Conversely Rivaud (1963, 210) who translates '. . . sans que nous percevons rapides ou lents, aigus et graves . . .' and Fronterotta (2003, 387): '. . . tutti i suoni che ci appaiono veloci e lenti, acuti e gravi . . .'. A similar translation is presupposed in Ciancaglini's interpretation (1998, 243, 246–7), according to which in this passage Plato 'parla di suoni che appaiono rapidi o lenti, acuti o gravi [. . .], senza distinguere i fattori genetici da quelli percettivi', and in this way he distances himself from Archytas,

The phenomena to investigate, presented in the contradiction of the lines 80a4–6 (*anharmostoi–symphōnoi*), is that of the encounter that clashes or, on the contrary, that of a consonant encounter between sounds of different pitches. In fact, the phenomenon that is considered in the following lines is only that of *symphōnia*, and not that of *anharmostia* as demonstrated by the final reflection on the origin of a single effect of high and low pitched, a classical expression defining the consonant encounter between sounds.[39] The fact that at the distinction of 80a4–6 there does not follow a description of what happens when one hears sounds that are *anharmostoi* and in that of sounds that are *symphōnoi*, but only a description of how *homoiotēs* is restored in the case of consonant sounds might indicate that here Plato is in reality interested in showing how sounds that hit the hearing at different moments are perceived as simultaneous. There is then a second 'strangeness' in the treatment: Plato does not contrast *symphōnia* to *diaphōnia*, but to *anharmostia*. As Barker has shown (2000, 90–2), unlike *diaphōnos*, which indicates a relationship that is not consonant, but musical, *anharmostos* means 'ill attuned, not proper to any well-formed pattern of musical attunement' and it is inconceivable to find it referring to a musical interval. The choice of *anharmostos* might indicate the fact that *Tim*. 80a–b represents the unhappy fusion of two differing projects: (1) to sustain the opposition between consonant and dissonant with a scientific argument and (2) to treat the distinction between musical and non-musical relationships. It might be interesting to point out that there is another passage in the dialogues in which Plato disregards, in an even more incomprehensible manner, the expectations of the reader, placing a different term from *diaphōnos* in opposition to *symphōnos*: it is in *Leg*. 812d7–e1 and the term is *antiphōnon*.

As the location of the theme of *symphōnia* among examples aimed at accounting for a mechanism of movement in absence of a void would indicate, the aspect that attracts Timaeus' attention here is the propagation and perception of sounds of varied pitch. The question is connected to a

for whom sounds can appear only high pitched and low pitched and not fast or slow. It may be that Plato is not aware of the difference between factors tied to the spring of sound and factors connected to perception, but I believe that in *Tim*. 80a–b he pays attention to the relationship between the movement of sound and perception. The passage really seems to be a tentative explanation of how, given certain kinetic characteristics of sound, certain perceptions derive from them (moreover thus showing well that he believes in the erroneous correlation between pitch and speed of propagation that Ciancaglini attributes to him, eliminating it from the theory of Archytas).

[39] Cf. Arist. *De an*. 426a26–b7; *De sensu* 447a12–b21, 448a; Theophr. 716, 64–90; ps.-Eucl. *Sect. can*. 149, 17–24; Ael. *ap*. Porph. *In Harm*. 35, 26 ff.; Nic. *Ench.* 262, 1–6; Cleon. 187, 19–188, 2; Bacch. 293, 8–12; Gaud. 337, 8–338, 3; Porph. *In Harm*. 104, 12–13 (attributed to followers of Archytas); Ar. Quint. *De mus*. 10, 2–3.

problematic aspect of acoustic theory in which pitch depends on the speed of propagation: how can the simultaneous perception of sounds of different pitch be explained if, precisely because of their different pitch, they spread at different speeds, reaching perception at different times? So, *Tim*. 80a–b is essentially a tentative resolution of this question, approaching it through the most suggestive and convincing case of the simultaneous perception of different sounds: the case of concord.

It is worth noting that the situation considered in *Tim*. 80a–b – i.e. that sounds do not simultaneously reach perception – is only a hypothesis, moreover a rejected one, in the treatise in which Aristotle elects the perception of concord to be representative of how two sensibles can be grasped at the same time. In *De sensu* 448a19–b17 Aristotle ponders the hypothesis that consonant sounds 'do not arrive simultaneously, but it seems thus, and we do not realise this, since the gap in time is imperceptible'. It is clear that behind this theory (attributed to the unspecified *tines tōn peri tas symphōnias*) there is a rapport between pitch and speed that is similar to that presupposed by Plato: a rapport in the light of which one cannot deny that consonant sounds strike the hearing at different moments. The simultaneity that the sounds of a *symphōnia* undoubtedly have at the moment of their birth becomes a misleading perception at the moment when they are heard. The illusion of the simultaneous impact of sounds on the acoustic apparatus comes from a limit of the acoustic apparatus itself, as it is not capable of gathering the imperceptible time that exists between the arrival of the first sound and that of the second (*hoi metaxy chronoi lanthanousin*).[40] This *chronos anaisthētos* does not exist for Aristotle, and he plays upon the concept in order to refute the theory of concord as an acoustic illusion; and references to an imperceptible time do not appear in

[40] It is interesting to note that such a perceptive mechanism is hypothesised in a work coming from the Peripatetic field to explain uniform and continual perception of a single sound, since this is the result of varied impacts produced by strings on the air. In *De audib*. 803b30–40 the author asserts that because of the smallness of the intervening time hearing is not able to perceive the interruptions, and so the sound seems single and continuous, in a like manner to colours (in *De sensu* 440a20–3 the idea is also considered and rejected that perception of colours is the perception of distinct impulses that only due to a deception of perception seem united: it concerns the theory of the juxtaposition, equivalent, in the visual field, to the theory in the field of hearing in 448a–b. Cf. Heracl. *ap*. Porph. *In Harm*. 31, 6–21, according to whom every played string, in its vibratory motion, produces various sounds, but the ear cannot distinguish between the intervals of the sounds and thus they give the impression of being a single sound). In the same way, not long after (*De audib*. 803b40–804a7) the author explains the phenomenon of concord: the impacts of the air of the high pitched are more frequent than those of the low-pitched sound, but there is simultaneity between the last of the high pitched and the low and there is no perception of intermediary sounds (*tas metaxy phōnas*), so that there results a continual perception. For an analysis of Arist. *De sensu* 448a19–b17, see Pelosi 2006b, 39–59.

Plato's reflection in *Tim*. 80a–b, which nonetheless shares with the *tines* of *De sensu* 448 the conviction that differently pitched sounds, produced simultaneously, do not reach the hearing simultaneously. The idea that the perceptive process of a sound is a process that takes place in space and time (as shown in 67a–c) permits Plato to elaborate an alternative solution to the problem raised by simultaneous sounds. To hear concord does not mean not to perceive the very short time that runs between the arrival of one sound and that of another, but to restore during the perceptive process the simultaneity that belonged to the consonant sounds when they were born.

Hence, through a mechanism that clarifies many varied phenomena, Timaeus suggests that he can account for fast and slow sounds, thus perceived as high and low pitched; these sometimes moving without there being a precise musical ratio between them, sometimes tied by a consonant relationship. Now, this concerns an objective difference, that can moreover be described in mathematical terms, like the lesson taught in Pythagoreanism. And yet Timaeus only explains *anharmostia* and *symphōnia* between sounds by using a perceptive explanation: the difference is made by the absence or presence of *homoiotēs* in the movement that sounds set off in the body. All of Timaeus' attention seems to be concentrated on the *kinēsis* of sounds within the human body (80a5: *tēs en hēmin hup'autōn kinēseōs*) that *Tim*. 67b4–5 has shown to be hearing. But to understand the exact meaning of *homoiotēs* of internal movement that makes in one case the perceptible sounds *anharmostoi*, in the other *symphōnoi* represents one of the major difficulties of the passage. As we have already said, it is a question of confronting a central notion of *Tim*. 80a–b that comes up four times (80a4: *anhomoiotēta*, a6: *homoiotēta*, a7: *eis homoion*, b4: *homoiotēta*).

The lines 80a6–b5 only throw light on how it can happen that *homoiotēs* is responsible for the perception of a *symphōnia*, since it is this phenomenon alone, and not that of *anharmostia*, that is taken into consideration, as we have already registered. So, it is a question of clarifying how between the high-pitched sounds, hence the most rapid, and the low pitched, those that are slower, the simultaneity with which they were carried out can be re-established. The explanation presupposes the idea that sounds undergo a slowing down during the journey inside the human body: the slowing down is such that, at a certain moment, the fast high-pitched sounds are caught up with and pushed by those of a lower pitch that are slower. It is not clear if this slowing down is due to the body's resistance (Moutsopoulos 1959, 37), but in any case it constitutes a problematic fact: if a slow sound slows down also (and there is no reason to believe that it is only the

high-pitched sound that undergoes a slowing down) how can it catch up with the high-pitched sound? In 80a6–b2, according to Timaeus it may happen that such a catching up occurs at the moment in which the faster sounds that are slowed down proceed with a movement that is *homoios* to that which the slower sounds impress on them as they catch up.[41] This sentence takes a snapshot of a decisive moment in the reconstitution of simultaneity and therefore in the perception of concord: that of the encounter between the two sounds that, after being created simultaneously, found themselves travelling separately and at different speeds, due to their acoustic characteristics. This instant is also underlined by the repetition of the verb *katalambanō* (80b1–2) that lays the emphasis on the moment in which the slow sounds catch up with the high pitched. Nevertheless, for the perception of concord, the salient feature is not only and not so much the encounter, as the conditions in which it comes about: the felicitous situation in which the slow sounds, catching up, find the fast sounds that are travelling with a *homoios* movement to themselves. How propitious this situation might be is demonstrated by the expression that follows (80b3–4). Given such a condition, the slow sounds do not create disorder in the fast sounds' movement, because they do not impress upon them a different movement but they attune the beginning of the movement of the slower to the *homoiotēs* with the faster sound, that is on the wane: in this way they manage to engender a single sensation derived from the union of the high pitched and the low.

We will now linger briefly on two questions and on alternative interpretations to that indicated above. The former concerns the expression at 80b2–3: *ouk allēn epemballontes anetaraxan kinēsin*. The word order allows us to understand (as we have done here) that the slow sounds do not convey a different movement and thus do not create disorder, but also that the sounds do not create disorder, although imparting a new movement.[42] With the latter interpretation, the problem seems to me to consist in accepting that the movement that the slow impresses on the rapid

[41] I consider that the meaning of the expression *ēdē te eis homoion elēlythuias* is complemented by the sentence that follows, *hais hysteron autoi prospheromenoi kinousin ekeinas* (see translations by Cornford 1937, 320; Bury 1966, 213; Barker 1989a, 62; Brisson 1992, 200; Zeyl 2000, 75). Taylor (1928, 575–6) also puts forward the possibility that *eis homoion* might be understood in an absolute sense, giving: '. . . and have come to a uniformity, by the motions with which they (the slower) move them (the more rapid)', but asserts that both constructions give the impression that the sounds, for the very fact that they slow down, reach uniformity; lastly he suggests accepting the construction that is most widespread and eliminating the comma after *elēlythuias* to avoid any ambiguity.

[42] For sounds not conveying a different movement, see Rivaud 1963, 211; Bury 1966, 213; Barker 1989a, 62; Brisson 1992, 200; for sounds imparting a new movement, see Cornford 1937, 320; Zeyl 2000, 75.

is defined as 'other' (*allēn*), considering the expressions that underline the similarity between the movements of the two sounds. Before passing on to the second question, I would like to draw attention to the presence of the term *anetaraxan*. Considering the value that the notion of order has in relation to musical ratios and in the cosmogonic account in the *Timaeus*, the presence of a term such as *anetaraxan*, in a treatment of concord in this dialogue, can only stand out as full of significance.

In the expression in 80b3–4 (*kata tēn tēs thattonos, apolēgousēs de, homoiotēta prosapsantes*) I mean *kata tēn tēs thattonos, apolēgousēs de* as a resumption of *apopauomenas ēdē te eis homoion elēlythuias*. The slow sound easily inserts itself into the movement of the rapid, because this last, becoming dimmed, has reached *homoiotēs* with that of the slow sound that is arriving. A similar interpretation emerges in Cornford's translation (1937, 320): '. . . rather by joining on the beginning of a slower motion in correspondence with the quicker which is now drawing to an end . . . ' Taylor (1926, 577) also reads it as *kata . . . tēn homoiotēta*, although he attributes the notion of the uniformity of movement to the slow: 'The overtaking motion supplies 'the starting-point of a slower motion uniform with (*kata tēn homoiotēta*) that of the swifter but now dying.'[43]

On the subject of concord, it would be natural to take the concept of *homoiotēs* here in the sense of 'correspondence', i.e. proportion between the ratios of two sounds. But this interpretation reveals itself to be problematic if we consider that what is lost, in the journey of sound from its source to perception, is not the proportion between the two sounds (that, on the contrary, is expressed by the fact that they proceed at different speeds), but the simultaneity.[44] And *Tim*. 80a6–b5 seems to offer a clarification of the mechanism with which the simultaneity and not the proportion of movements of sounds is restored. On the other hand, interpreting the notion of *homoiotēs* in the sense of 'sameness', the impression is that the phenomenon under consideration is not that of concord, but of unison. And yet, on closer

[43] For similar translations to Cornford, see also Bury 1966, 213–14; Zeyl 2000, 75. See also the different interpretations of Barker (1989a, 62): '. . . impart the beginning of a slower motion in conformity with that of the swifter sound, when the latter is fading. By attaching similarity . . . ', Brisson (1992, 200): '. . . ayant ajusté le début de la révolution la plus lente sur la révolution la plus rapide mais en déclin, au moment où celle-ci lui était devenue semblable . . . ', Fronterotta (2003, 387): '. . . adattando il principio del movimento più lento a quello del movimento più veloce che sta rallentando e portandoli all'uniformità . . . ' (cf. also Rivaud 1963, 211).

[44] Indeed, an interpretation like that of Cornford (1937, 321 n. 1, 324–6), who takes *homoiotēs* to mean correspondence, must presuppose something that ruins the proportion with which the two sounds were produced. Cornford identifies it in the hypothesis, that is in fact not entirely convincing, that the slow sounds undergo a slowing down that is greater than that of the rapid sounds.

inspection, this impression is based on the idea that the movement of the propagation of sound and that of receptiveness of hearing are equally essential for the definition of the pitch of a sound. But this is something that is not just indisputable but on the contrary, somewhat problematic. If we consider: (1) that the pitch of a sound depends on the speed with which it moves; (2) that the perception of a sound is its movement in the body; (3) that the sound slows on impact with the body, we cannot but draw the embarrassing conclusion that every sound is perceived as a sort of *glissando*. So, we must suppose that it is not the speed at which the sound travels in the body that determines the perceived pitch, but the speed with which it reaches the hearing.[45] Hence, the fact that in an internal movement of hearing sounds meet again and proceed according to an identical motion does not signify that they have the same pitch: to be in unison they must arrive at the same velocity, and therefore at the very same time, to affect the hearing.

The pursuit and meeting of sounds in 80a6–b5 is in the temporal coordinates of the different speeds (the two speeds of high-pitched and low-pitched sounds and then the various velocities due to their slowing down) and the spatial coordinates of both the external journey (from the source of sound to the hearing) and the journey inside the human body; this last journey being one that transforms the propagation into sensation. Following the instant in which the sounds are produced, the consonant simultaneity is found again (and for perception alone) in the moment in which the kinetic and perceptive processes triggered by the impulses of the two sounds meet in similarity. The expression in 80b3–4 takes up the concept expressed in 80a6–b2 (the analogies are evident: *apopauomenas ēdē – apolēgousēs de, eis homoion elēlythuias – kata tēn tēs thattonos . . . homoiotēta*) and goes more deeply into it, explaining that it is the beginning of the slow motion that enters into contact with the fast that, dying out, reached *homoiotēs*. So, the encounter takes place between the start of one and the close of the other (*archēn bradyteras . . . tēs thattonos, apolēgousēs*).[46] Now, in a treatment of acoustic mechanisms, such a reference to the 'start of

[45] Barker 1989a, 62 n. 31. See also Moutsopoulos (1959, 40–1; 2005, 114), according to whom the initial speed of sounds depends on their pitch, but, once they have reached the human body, a diminution of the velocity of the sounds does not provoke any diminution of pitch. In reality, in 67b4–6 it seems that it is precisely the speed of the internal movement, that starts out from the head and reaches the liver, that determines the pitch of a sound; but at that point there is no reference to the fact that sounds slow down during their journey and the movement of hearing is understood as a continuation of the propagation of the *plēgē* by means of the ears.

[46] See, in the explanation of the perception of concords, provided by the author of *De audibilibus*, the expression: *ton de teleutaion tōn ēchōn hama sumbainei prospiptēin hēmin pros tēn akoēn kai ton apo tēs bradyteras gignomenon* (804a4–6).

a movement' cannot but be interpreted in relation to that movement of sound in the human body that is hearing.[47] Hence, the expression *archēn bradyteras phoras* would indicate the moment in which the slow sound manages to solicit sensation. If, in that instant, the high-pitched sound within the body is travelling with a similar motion to that with which the slow one arrives, then concord will be perceived (Barker 1989a, 62 n. 31). In fact, the actual perception of concord must be deferred to the moment in which the slow sound, as it travels through the body, also gives sensation of itself. But the moment of the impact with perception and the sameness between the speed with which the impact occurs and the speed of the high-pitched sound constitute the essential conditions for the perception of concord to occur. The precise moment in which a *symphōnia* is perceived – that is, one has the sensation of a fusion between high and low pitched – is perhaps best defined by the expressions that describe how the impulses of the low pitched reach those of the high pitched and push them. But in general the intention to elaborate this precision does not seem to appear in Timaeus' words, nor perhaps the awareness of a need for it. It seems to me to be demonstrated by the fact that the expression in which the reference to the beginning of the movement appears to present itself essentially as a repetition of the preceding concept.

On the other hand, in the words of Timaeus, what seems relevant is the care taken to show that, given certain conditions, the impulse of the slow is not perceived as a jolt that interferes with the movement of the high-pitched sound, but introduces itself in a fluid manner into the kinetic process of the high pitched, which is thus transformed into a single consonant movement. The idea of a confluence between the movements of one sound and that of the other anticipates the definition of concord as a fusion of a single impression of two stimuli of sound.[48] In this sense, it

[47] And hence, on this occasion only, the use of the term *phora*, indicative in a specific manner of a motion of 'translation' from one point to another, might not be accidental (cf. *Theaet*. 181b–d; *Parm*. 138b–c; *Leg*. 893b–894e). For a distinction between *phora* and *alloiōsis* in a context of reflections on music, see Heracl. *ap*. Porph. *In Harm*. 30, 9–16: the movement of the notes is defined as a rectilinear *phora* to the organ of hearing.

[48] The sentence in which the level of fusion that the stimuli of the high pitched and the low pitched reach in the perceptive process is expressed – *mian . . . synekerasanto pathēn* – is very incisive. In a very different context, that of psychogony, Timaeus makes use of a similar expression to describe the prodigious act of the demiurge who reduces the three genera of Being, Same and Different into a single unit: *synekerasato eis mian panta idean* (35a7). In *Resp*. VII, where Socrates tries to show that some sensibles, soliciting opposite impressions, invite an investigation of the intellect, the distinction appears (524b10–c1) between the case in which the soul separately conceives of the two impressions and that in which, the two impressions not being separate, the soul conceives of them not as two, but as one. Although in the passage in question there are no references to musical phenomena, the two perceptive acts described here could well refer to the perception of dissonance and concord.

seems significant to me that Plato connects *homoiotēs* to *symphōnoi* sounds, hence to a category of sounds that is very restricted – those defined by precise ratios, multiple or epimoric – and not to any couple of sounds for which the ratio is expressible in mathematical terms.[49] The acoustic characteristic of uniformity seems to be the translation in perceptive terms of mathematical excellence recognised in consonant sounds.

In a passage in which he refers to the Pythagorean attempt to establish which were the most consonant relationships, Porphyry (*In Harm*. 107, 15 ff.) describes a mathematical procedure that consists in subtracting a unit from every term of the ratio (in the case of the octave, for example: 2–1 and 1–1), defining the quantity 'similar' (*homoia*); then adding up the values obtained (1 + 0 = 1), arriving at a quantity that is defined as 'dissimilar' (*anhomoia*). The sounds that are more consonant are those that present the smallest 'dissimilars': so, in order, octave (1 dissimilar), fifth (3 dissimilars), fourth (5 dissimilars). Leaving aside questions relative to the correctness of the procedure, the use of the categories of similarity and dissimilarity (which tallies with a theory on the relationship between the different frequencies of the impacts of two consonant sounds, see Barker 1989a, 35 n. 29) seems very interesting in relation to the theory of *Tim*. 80a–b. The idea of using this notion of *homoiotēs* to go in search of *symphōnia symphōnotera* even goes beyond the restrictive terms of *Tim*. 80b, that limit uniformity exclusively to consonant sounds.[50] Notwithstanding this, the idea of associating the perception of concord with a well-defined characteristic in an acoustic sense like uniformity emerges from both *Tim*. 80b and Porphyry's passage.

[49] We note the difference with respect to a conclusion like that which Aelianus (*ap*. Porph. *In Harm*. 36, 9–37, 5) draws from a reflection that also concerns the relationship between sounds that, being of different pitch, travel at different speeds. Having spoken of the ratio of the octave 2:1, Aelianus makes reference to the notion of commensurability between speed and sounds, a ratio of 'number to number' (*arithmos pros arithmon*). The expression recurs in the *Timaeus* (36b3), in the description of psychogony, to indicate the ratio of *leimma*, of the value that is left when two tones are introduced into a fourth: the expression indicates commensurability (Kucharski 1951, 44–5), but not the perfect commensurability of multiple or epimoric ratios (Barker 1989a, 60 n. 18). For another recurrence of the same expression, cf. Theon Sm. 50, 18.

[50] An analogous reflection to that in Porph. *In Harm*. 107, 15 ff. appears in ps.-Arist. *Probl*. XIX, 39. The author endeavours to understand why the octave is more pleasant than unison and establishes a classification of concords: the octave holds a special position, by virtue of the relationship that it establishes with the movements of the sounds that make it up. In the case of other concords, the closures of one note or another are incomplete, ending half way: thus there is a difference in sensation; in the case of the octave, however, the closure is common, because the second impact on the air of the *nētē* is a *hypatē*. The concept of difference can be likened to that of dissimilarity in *Tim*. 80a–b and in the passage in Porphyry, see Barker 1989a, 95 n. 64.

THE MUSICALITY OF THE PSYCHIC STRUCTURE

The soul, harmony of corporeal elements

'So, my dear, in no way does it suit us to say that the soul is a harmony' (*Phaed*. 94e8–95a1). With these words in the *Phaedo*, Socrates concludes a long and emphatic rejection of Simmias' proposal to interpret the nature of the soul as harmony. The first appearance in Plato's work of the image of a soul-harmony happens like this, in a manner that is not entirely promising; but it concerns a notion that is destined to be rehabilitated in Plato's successive analyses of the *psychē*. It is precisely an analysis of that part of the *Phaedo* in which Socrates casts aside the idea that the soul might be harmony that helps us to understand the recovery and re-employment of this notion in other dialogues.

The theory that Socrates jettisons in the *Phaedo* has the precise features of a doctrine that could perhaps be connected to Pythagoreanism,[51] and interprets the soul as a harmony of corporeal elements (86b6–c2, d1–4). Simmias and Cebes, preoccupied with their inability to win over the fear that death sweeps away the soul and on the point of losing Socrates, an enchanter capable of exorcising the fear of death, express doubts about the idea that the soul survives the body (which persist even after the arguments deployed by Socrates: on opposites 70c–72e, on recollection 72e–76e and on affinity 78b–81a). Moving on from the last Socratic argument that contemplates the assimilation of the soul to the divine, Simmias objects that one can say such things even of harmony: that it is 'something invisible, incorporeal, very beautiful and divine' (85e4–86a1: *aoraton kai asōmaton kai pankalon ti kai theion*); and yet one certainly cannot say that it survives the lyre and the strings that have produced it. The operation of assimilating the soul to harmony on the basis of an equation of the type – the soul is to the body what harmony is to the lyre – most assuredly cannot meet with Socrates' agreement. Of the argument on affinity, Simmias' theory takes up the opposition of soul to body and the assimilation of soul to the divine, but not the independence of soul from body. For

[51] Let us consider, in the *Phaedo*, besides the report in which Simmias and Cebes would have been the pupils of Philolaus (61d6–9), the fascination that the theory exercises on Echecrates (88d3–6, cf. Burkert 1972, 272). As for the possibility of attributing the theory in particular to Philolaus, on the basis of the *Phaedo* and of Macrobius' testimony – *Somn. Scip*. I, 14, 19 = 44 A23 DK: 'Pythagoras et Philolaus harmoniam (*scil.* animam esse dixerunt)' – see Huffman's conflicting observations (1993, 326–32). On the soul-harmony in Pythagoreanism and the passage of the *Phaedo*, see also Guthrie 1962, vol. I, 306–19; Frede 1999, 79–81; Barker 2005, 72–3. With regard to the difficulty of clearly understanding the soul-harmony theory, given the diverse nuances that the term *harmonia* has, and for the analysis of some interpretative hypotheses, see Taylor 2001, 51–7; Wagner 2001, 69–70.

Socrates the incorporeality of the soul is not only being other than the body, but also being independent from the body. An independence, furthermore, that Simmias will then recognise, when called to decide between the idea of the soul-harmony and the argument of recollection, repudiate his own theory (91e–92e). Moreover, in setting forward his objection based on the soul-harmony, Simmias does not seem to realise that it collides with arguments with which he previously agreed or did not contest (Frede 1999, 81).

It is clear that, in Simmias' theory, the definition of harmony in analogous terms to those employed by Socrates to describe the soul, through such characteristics as invisibility, incorporeality, beauty and divinity, only acts to create the requirements for the assimilation of the soul to harmony. But this definition is soon replaced by a materialistic definition of harmony, when it is a question of showing that harmony does not survive the physical elements on which it depends. Thus, Simmias' theory is based on an oscillation, not lacking consequences, between two very different nuances of the term harmony,[52] while decidedly depending on a materialistic notion of attunement.

What is irreconcilable with the immortality of the soul is the theory that takes the harmony of the soul as an attunement between corporeal elements (86b6–c2). Socrates intentionally underlines precisely this aspect, summarising Simmias' theory.[53] It is a kind of theory that can be likened to reflections elaborated in physical and medical terms and associated with Empedocles, Alcmeon and the Hippocratic treatises.[54] The fact that Simmias defines that type of harmony as 'most divine' (86c6: *theiotatēn*) does not free it from a heavy involvement with matter, as Simmias' own words demonstrate: it is most divine as is any harmony that is to be found in the work of artists (86c6–7). It is clear that, understood in this way, harmony is a long way from the being that for Plato is representative of

[52] Moutsopoulos 1959, 344; Gottschalk 1971, 181–2, 194–5.

[53] 92a7–9. Cf. *Leg*. 891c, where the idea that the soul derives from physical elements is connected to atheism.

[54] See Guthrie 1962, vol. I, 313–16; Moutsopoulos 1959, 322 n. 9, 325, 344; Lippman 1964, 34–5, 169 n. 32. A reference to the harmony of the body appears in *De victu* I, 8. There are marked analogies between Simmias' soul-harmony and physiological harmony – *isonomia* – of which health consists, according to Alcmeon (24 B4 DK). On the differences between Platonic harmony, that can also generate itself from unequal elements, and Alcmeon's concept of *isonomia*, that presupposes equality, see Cambiano 1982, 224–6. We can link the Peripatetic theories of Dicaearchus (frr. 5–12 Wehrli) and Aristoxenus (frr. 118–21 Wehrli, the soul as *melos hērmosmenon*), to the tradition that considers harmony of the soul as harmony of physical elements, cf. Gottschalk 1971 (also for an attempt to trace the origins of the soul-harmony, 190–6); Bélis 1985.

the soul, and this is why he furnishes Socrates with a strong rebuttal. This consists of two arguments. (1) Harmony follows[55] the elements that composed it, while the soul opposes and dominates the corporeal elements (92e4–93a10, 94b4–95a3, cf. 79e8–80a5). (2) If the soul is harmony, then virtue and vice are respectively the attunement and lack of attunement of the soul: in such a case there would be a harmony (moral) in the harmony (physical, i.e. of the corporeal element) and the virtuous soul would be the more harmonic. But this would correspond to asserting that the good soul is more soul than the bad and, since that is not possible, it must be admitted that Simmias' soul-harmony theory leads to the absurdity of claiming that a bad soul cannot exist (93b8–94b3).[56]

Disproving the thesis that the soul is harmony, in the *Phaedo*, Socrates seems to follow the oscillation from an intelligible sense to a material sense in the term harmony, which is present in Simmias' theory. But elsewhere Plato will be moved to reconsider the possibility of seeing harmony in the soul, indicating with precision the sense that should be given to the term. Unfolding over the entire Platonic production, the theories and suggestions on the harmonic structure of the soul ring out as a response to Simmias' objection, unlike that given by Socrates in the *Phaedo*. A response that will show how a harmonic representation of the soul can cohabit with the conviction of the immortality of the soul, and how, in its deepest meaning, the harmonic representation of the soul is an expression of its immortality.

[55] On the modes of relationship between soul and body expressed by the verb *hepesthai*, see Sorabji 2003, 153–5. On the hypothesis that the relationship between harmony and material elements (hence between soul and body) in Simmias' theory should be understood in terms of supervenient dualism, see Wagner 2001, 76–9.

[56] As Lovibond notes (1991, 44–5), argument number (2) does not seem entirely convincing: if, on the one hand, it is undisputed that the essence of the soul is not a question of levels (hence, there cannot be one soul that is more soul than another), on the other hand it is always possible to take the term harmony in two ways, one of which implies different levels; cf. Taylor 2001, 62–4. Aristotle too, treats the soul-harmony theory in the first book of *De anima* (407b–408a). He dismisses it, on the basis that one can speak of harmony with two meanings – composition or proportion of elements – but in neither of them is harmony assimilable to the soul; furthermore, harmony lacks a quality that is characteristic of the soul: the faculty to impart movement. Evoking the physiological field from which the theory derives, Aristotle notes that it is appropriate to speak of harmony regarding health and in general regarding the virtues of the body, but not regarding the soul. Furthermore, the idea that the *psychē* is harmony of the parts of the body is rejected with even greater force: if the soul is harmony in that it is the composition of parts of the body, as there are diverse corporeal compositions, it is not clear which composition of parts of the body is the soul; if the soul is harmony in that it is proportion, then we must hypothesise the presence of many souls in the body, since all parts are composed of elements combined in proportion. Cf. *Pol.* 1340b18–19, where Aristotle distinguishes the theory that states that the soul is harmony from that in which the soul contains harmony.

The soul, harmony of psychic elements: breaking up and musical reassembly of the psychē

The soul that Socrates, in the *Phaedo*, refuses to consider a sort of harmony is the immortal rational *psychē*, the *psychē* that, as we shall see, in the *Timaeus* will even be constructed through musical procedures. But the journey to arrive at the musical representation of the rational soul is long and develops in parallel with the journey of deeper investigation of the nature of the soul, marked above all by the reflections in the *Phaedo*, the *Republic* and the *Timaeus*. To analyse the principal Platonic representations of the soul in musical terms means taking on the principle reflections on the *psychē* that are to be found in the dialogues.

The *Republic*, traditionally considered a fundamental hinge in Platonic psychology, presents – as we have already had the occasion to discover – pregnant musical metaphors of the structure of the soul. It is interesting to note that the first occurrence of a description in musical terms of the intrapsychic equilibrium puts forward the very same concepts of tension and relaxation that were evoked by Simmias (86b7: *entetamenou*, c3–4: *chalasthēi . . . epitathei*, 92a9: *entetamenōn*). Nonetheless, in *Resp*. 411e4–412a2 they are interiorised, to characterise the psychic elements rather than the corporeal ones. Socrates explains that the divine gift of music and gymnastics has the purpose of helping man to harmonise the two different elements of the *psychē* – the spirited and the philosophical – stretching and slackening them in the correct measure.[57] The widening of the perspective to include a multiplicity of psychic components makes it possible to conceive of the equilibrium of the soul in musical terms. The work that music and gymnastics carry out on the soul is understood as a job of reciprocal tuning, through the tension and relaxation of the two strings: the spirited and the philosophical. The musical metaphor, but also the difference between material and psychic harmony, are fully expressed in Socrates' remark at 412a4–7, in which he asserts that the qualification of being musical and harmonious at the highest level (*mousikōtaton kai euharmostotaton*) appertains more particularly to the person who applies music and gymnastics to the soul than the person who materially tunes the strings between them.

That finding harmony in the soul is a 'musical' operation, indeed the most profound 'musical' act, comes out in the words that Socrates uses

[57] Cf. 410d8–9, where there is reference to a tension of the spirited beyond what is proper and 410e2, where, on the contrary, Socrates refers to the excessive relaxation of the philosophical. Cf. 410e8, on the concept of harmonisation between the two elements.

beforehand in the *Gorgias* (482b7–c3), expressing the fear of being in disagreement with himself: 'I truly deem that it would be a better thing to play a lyre out of tune and without harmony, to direct a tuneless choir, or to be at variance or of another opinion with respect to a multitude of people, rather than to be dissonant (*asymphōnon*) and of a different opinion with one person alone, if that one person is myself.' A further example of the lively resonance that we find in the dialogues, the passage evokes an objectionable acoustic dimension through the terms *anharmoston*, *diaphōnein* and *asymphōnon*. To call on the acoustic sensations and to assimilate the soul's intimate agreement with *symphōnia* is a very effective manner of saying how unappealing intrapsychic dissonance and faulty tuning can be. Here, the musicality of the soul seems above all to consist in the serene coherence of the person who follows the philosophy 'that always expresses the same concepts' (482a7–b1). Laches too, in the homonymous dialogue, expresses the idea that the true musician is in reality the person who harmonises his own personality. A true *mousikos* is someone who lives by tuning, not a lyre or frivolous instrument, but his own life, making it consonant with respect to discourse and action (188d). In such a case, musical metaphors serve to account for the full accord between words and behaviour. It is interesting to note how Laches underlines that the harmony between discourse and action is not just any harmony, but 'the only Greek harmony', the Dorian. Further on in the dialogue (193d11–e4), borrowing Laches' words, Socrates states that neither he nor his interlocutor are 'tuned according to Dorian harmony', because their actions do not 'sound in concord' with their discourses.[58]

As we have seen, in *Resp*. 411–12 it is a question of wisely measuring out music and gymnastics to bring the strings of the spirited and the philosophical to the right level of reciprocal tension, enabling the soul to assume a harmonic order. The description of music's intervention is particularly interesting. In 411a5–b4, Socrates does not seem concerned by the fact that the ears, as funnels, let the sweet, soft and mournful *harmoniai* through, but by the fact that this may happen to excess. The effect of certain music on the spirited element is described as able to render it soft almost as if it were made of iron and made useful, instead of useless and hard. But Plato suggests that excessive exposure to this effect determines a 'fusion' and a 'liquefaction' of the spirited. Besides the description in materialistic

[58] See Barker (2005, 61–4) who hypothesises that in the musical metaphor used by Laches, words and actions are woven together like the two substrata that make up a *harmonia* and that the use of the musical metaphor is there to indicate that, besides the full coherence between words and actions represented by Dorian *harmonia*, there exist various nuances.

terms of music's intervention on the *psychē* – noted several times already and here emphasised by the metal metaphor – it seems worth noting that the construction of psychic harmony passes through the modification of the elements, whereas the destruction of harmony passes through the loss of the identity of those elements. If a certain dose of music makes the spirited malleable, an excessive dose destroys its essence. To stretch and slacken the spirited and the philosophical in order to find the right reciprocal pitch that determines harmony means finding the right tones of these two elements.

Advancing in the musical interpretation of psychic harmony is not possible on the basis of a passage in which the metaphor of strings and tuning does not seem to be developed with rigour. On the one hand, it appears that music and gymnastics serve respectively to slacken the philosophical and stretch the spirited (410b–e). However, on the other hand, music brings about its 'relaxing' effect on the spirited too: a useful and necessary effect, on condition that the right measure is not surpassed.[59] While at 411c9–d5 the effect of music on the philosophical is described in terms of a strengthening that makes us think of a raising of the tension: the lack of musical stimuli renders the philosophical 'weak, deaf and blind' and 'of non-purified sensations'. It is probable that music and gymnastics operate on both elements – the former relaxing the spirited and stretching the philosophical, the latter relaxing the philosophical and stretching the spirited (Barker 1984, 138 n. 50) – but it does not seem possible to connect the musical metaphors present in this passage to a rigorous and coherent reflection on 'musicality' within the soul.[60]

When the image of a harmony of the soul reappears later in the dialogue (441e4–444a2), the tones of the soul have gone from two to three,

[59] 411a5–b4. Here Plato seems to refer to the fact that the dosage of music and gymnastics should take into account individual differences (411b6–c2).

[60] Barker 2005, 50–2. According to Wersinger (2001, 172–9), in the psychological analysis in *Resp*. III and in the consideration of the work that music and gymnastics carry out on the *psychē*, Plato is most interested in the spirited; on a basis of the different levels of tension and slackening provided by gymnastics and music, in 411a5–c2 five typologies of the soul would emerge, characterised by different conditions of *thymos* (sweetened, soft, relaxed, destroyed and hardened). It seems to me that in 411–12, in evaluating the effects of music and gymnastics, Plato is as interested in the spirited as the philosophical; but he seems to consider the effect of music and gymnastics sometimes in the elements taken singly, sometimes in a combination of them. I do not believe that it is possible to draw a precise picture of the possible psychic results of the work of music and gymnastics from 411–12; in any case, such a hypothesis would have to take into account both the philosophical and the spirited. It seems to me in 411a5–b4 that Plato notes, in general, that music has the effect of sweetening the spirited and an excess of music of destroying it; while, in 411b6–c2, he goes on to consider this effect in relation to individual differences: it is clear that a minimal surplus of music would be sufficient for a soul that is by nature lacking in spiritedness to bring about the loss of the spirited, while in a spirited soul the effect will be one of 'slackening'.

in the place of the philosophical element we find the rational, and the situation of reciprocal relationships between elements is more complex. At this point it is clear that the spirited engages with the rational element, which holds a role of command, a relationship of subjection and alliance (441e4–6). The reflection on the use of music and gymnastics to create harmony between them – to which there is an explicit reference (441e8) – is expressed in a manner that is worth analysing. The combined use of music and gymnastics 'stretches and feeds one through beautiful speeches and learning, while it slackens, calms and sweetens the other through harmony and rhythm'. References to musical practices of tensing and slackening reappear, here turned respectively to the rational and the spirited, but it is clear that, despite an initial reference to music and gymnastics, the two operations are both linked solely to the effect of music, in its verbal and instrumental components. Another relevant aspect of the passage is the term used to indicate the effect of the contributory action of music and gymnastics, which is not that used in 410b–412a. This is another term that holds an important musical relevance, *symphōnia*: the mix (*krasis*) of the two disciplines makes the rational and the spirited consonant (*symphōna auta poiēsei*). The fact should perhaps not be overlooked that Socrates uses precisely the concept of *symphōnia*, directly after talking about the hierarchic order between the two elements of the soul: the sounds in a concord have a hierarchic relationship, in which the lower-pitched sound, which provides the melody, has the principle role (cf. Plut. *Coniug. praec.* 139c31–d2). In any case, not long after (442c10–d1) Plato makes use of the notion of *symphōnia* to indicate the relationship that runs between the three parts of the soul of a temperate individual;[61] and the musical atmosphere that the term evokes heralds the famous description of the intrapsychic order in terms of a harmony between three notes.

When, after a long pursuit, the characters in the dialogue finally find a definition of justice, it is in musical language that they express it (443c9–444a2). To describe the salient characteristic of the just individual – i.e. the ability to 'harmonise the three parts' of the soul so that each psychic element carries out its own role and occupies its own place – Socrates uses the simile: 'like the three fundamental borders of harmony – *nētē*, *hypatē*

[61] It is a question of the retrieval of a concept proposed during the treatment of temperance, analysed by enlarging the perspective from the microcosm of the human soul to the macrocosm of the State. The virtue that permeates the entire State is that which best assimilates itself to *harmonia* and *symphōnia* (430e3–4, 431e7–8, 432a2–9): it 'makes sing in the octave' the diverse elements of society, the weakest, the strongest and the average. At the end of the passage it is defined as the natural *symphōnia* of the best and worst element.

and *mesē* – even though there might be other intermediary ones' (*hōsper horous treis harmonias atechnōs, neatēs te kai hypatēs kai mesēs, kai ei alla metaxy tugchanei onta*). The 'psychic state' that is justice (Cooper 1977, 151–2) can be likened to a complex musical structure, in which the reciprocal relationships between sounds answer to an ideal of harmony. Once again we find ourselves faced with a musical metaphor, and one of a more refined elaboration, but with the difficulty of grasping all the terms involved.

The three basic notes of harmony, with their well-defined reciprocal relationships, could be seen to indicate the three functions of the soul, in a passage in which Plato firmly insists on the necessity that the location and role of each component be clearly defined, as well as the hierarchical order of the three.[62] But to which psychic elements does the expression 'even though there might be other intermediary ones' refer? I do not think that here the analogy with the musical structure of the *harmonia* helps us much, if not to indicate that the harmonic structure to which the soul is assimilated can also assume the complex form of a plurality composed of one harmonic whole. The following expression with which Socrates describes the well-balanced condition of the just seems to be a reference to this coherent articulation of multiplicity (443d7–e2). But evidently the problem is to understand *which* psychic elements and *how much* of them it is that the just individual harmonises. Perhaps we should not ignore that the expression with which Plato, at 443d7, introduces the presence of these intermediary and psychic elements is somewhat elusive. It is possible that here the idea of a further psychic complexity (with respect to tripartition) appears and that it is expressed in a highly uncertain way. To support this hypothesis, we can observe that in another passage of the *Republic* there is the glimmer of a possibility of a more complex psychic articulation. In the final book, he seems to contemplate the likelihood that the soul 'in its true nature', i.e. in its immortal component, is constituted of 'many aspects' (612a3–5: *eite polyeidēs eite monoeidēs*). As we shall soon see, in the *Timaeus*, Plato conceives of an internal articulation of the rational soul itself; and it might be interesting to note how similar the operations and the descriptions of harmonisation of the psychic elements of *Resp*. 443d7–e2 and *Tim*. 35a6–b1 are, where the harmonisation of the elements that make up the immortal soul is described. This obviously does not mean that in *Resp*. 443d–e Plato has already got a psychic picture in mind like that of the *Timaeus*. But it seems reasonable to think that the idea of a further

[62] On the difficulty of reconciling the idea of psychic harmony in 410–12 and that in 441–4, see Gill 1985, 12–15; Barker 2005, 37–8.

complexity already exists in the *Republic* and that the enigmatic expression on 'intermediary' tones in 443d7 might allude to it in some way. In other words, in 443d–e Plato does not seem to exclude that the arrangement of the soul is different from that which highlights its three components, and yet he asserts that in any case musical harmony would constitute a valid metaphor for it; anyway, the just individual would be one who organises and maintains the constituent elements of the *psychē* in a harmonic order (i.e. in which every element 'sings' its own part) whether there are three or more.

In the *Republic* the musical description of the intrapsychic order develops in conjunction with a reflection on the articulation of the soul. The reassuring and potent image of a musical organisation of the soul will also come up again after the disturbing representation of the soul as a monstrous assembly of a polycephalous beast, a lion and a man (588b–590e). Recalling the passage of the third book in which the qualification of musician was attributed not to the person who practises music, but to the person who is able to render the soul musically ordered (412a4–7), Plato again evokes the perfect phenomenon of concord, to show how it is possible to reconstruct the beauty of order in the monster of the multiplicity of natures that is the human soul (591d 1–5). Notwithstanding this, despite running through almost the entire dialogue, from the third to the ninth book, the concept of the harmony of the soul seems to be used in an ambiguous manner: in one case, it indicates the equilibrium between two components of the soul, in another case that between three elements of the soul and finally the perfect balance of the philosophically ordered soul. The absence of a distinction between levels of harmonisation makes it more difficult to understand the differences (Gill 1985, 23–6).

The soul, harmony of Being, Same and Different: musical multiplicity in the rational psychē

The composite *psychē* that is described in the *Republic* in the incisive musical image of harmony is the embodied soul that includes mortal ramifications. Two of the fundamental notes of psychic *harmonia* reveal themselves, at the end of the dialogue, to be scratches and incrustations on the nautical Glaucus who represents the *psychē* ruined by immersion in the corporeal (611a–612a). After dedicating so many reflections to the comprehension and the care of the embodied soul, Socrates proclaims the need to contemplate the *psychē* outside that contact with the body that contaminates its nature, to observe it in its purity through reasoning (611c3–4).

This 'logical' point of view, which allows us to consider the soul beyond and before its entrance into the sensible dimension, is the privileged point of view offered by Timaeus' words in the homonymous dialogue: words that permit the contemplation of the soul in the purity of its birth. The passage that describes, step by step, how the demiurge creates the soul[63] indeed illustrates the creation of the World Soul. But a subsequent part – along with the descriptions, that we have already analysed, of the discomfort that the immortal human soul goes through when entering the body – also enables us to see the creation of the immortal principle of man in the framework of psychogony. In 41d4–7, after assigning to the gods the job of creating mortal beings, the demiurge returns to the 'bowl in which he had mixed the World Soul, making it temperate'. He pours in what was left over from the preceding elements and mixes them 'more or less in the same way', although they are not as pure as before, but by now third or fourth degree.[64] Hence, the fundamental difference between the World Soul and that of man does not lie in the type of ingredients, nor in the manner in which they are combined: it does not concern those aspects that characterise the account of psychogony. The gap between the World Soul and the soul of man is marked by the latter having constituent parts that are of decidedly inferior purity; but it concerns an aspect to which we will return after considering the phases of creation. So, let us proceed with a reading of the passage that is a description of the birth both of the World Soul and of the immortal human soul.

The first part of the demiurge's job consists in a double operation of combining the three genera of Being, Sameness and Different. First he mixes together the Forms of these genera (those that are indivisible and that remain identical) with their sensible manifestations (those that

[63] 35a1–36d7. We have before us a sort of manual with which to build a model of the World Soul, as Zedda noted (2000, 23–8); he also observed that the job of the demiurge imitates artisanal activities, metalwork in particular.

[64] Cf. Cornford 1937, 143, for whom the distinction between an inferior purity of two or three degrees might indicate the difference between the genera and allude to that superiority of the male genus that is affirmed later in the dialogue. More convincing to me are Pradeau's explanations (2008, 50 n. 3), according to which the three degrees of purity refer to the differences between the World Soul, celestial soul and soul of man, and Lisi's explanation (2007, 113): 'human mind has a purity of second degree in relation to gods and daemons, but of third degree with relation to World Soul'. For Robinson (1970, 85–90, 104–5) 'less pure' means 'less perfectly rational', because the rational human soul must take on the irrationality of the sensible dimension. However, it seems to me that this explanation is above all concentrated on the result of the inferior purity more than on the ontological fact itself. Indeed, Robinson asserts that '. . . there is no difference in kind between World Soul and rational element in the human soul; the different conditions under which they act account for their varying degrees of success in rational activity'. Certainly, they are the conditions that the rational human *psychē* encounters that *activate* its potential to lose balance, but this same potential is congenital and constitutes a structural difference between the World Soul and the rational human soul (below, pp. 194–5).

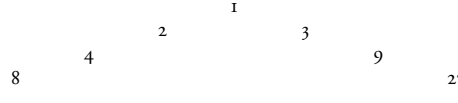
are divisible and that become in bodies), to form the Being, Same and Different intermediaries.[65] This first operation takes into account how the dimension of becoming is encompassed in the structure of the soul from its foundations. Existence, like Sameness and Difference of the soul is, hence, something halfway between the full Existence, Sameness and Difference of the Forms and those changeable in the dimension of becoming. In this way, the soul is predisposed to participate in both dimensions: the intelligible and the sensible. Secondly the demiurge amalgamates the three intermediary genera: first 'harmonising' the Different and the Same 'with decision', then adding Being, to form one whole reality. Thus, in the subsequent division into parts, each part results as made up of a mixture of Same, Different and Being (35a6–b3).

At this point there begins a second phase in the process that we could define 'harmonic division'. From 35b4 until 36b6 the demiurge is busy dividing, according to proportions that have a precise musical value, the 'matter' that was created through the mixing operations. He starts by dividing, by means of two geometrical progressions (35b4–c2), cutting out a part (1), twice that part (2), one that is one and a half times the second and three times the first (3), twice the second (2^2), three times the third (3^2), one that is eight times the first (2^3), and one that is twenty-seven times the first (3^3). The numbers (1, 2, 3, 4, 9, 8, 27)[66] that divide up the seven portions form a sequence that contains two geometric progressions: one progression with a common ratio of 2 (1, 2, 4, 8), and the other with a common ratio of 3 (1, 3, 9, 27).[67] Now the demiurge fills in the double

[65] 35a1–6. For the analysis and interpretation of this extremely complex passage, see Taylor 1928, 106–9; Cornford 1937, 59–66; Brisson 1974, 269–332. In *Soph.* 254d–259d Being, Same and Different are, with motion and calm, *ta megista genē*, but, as Lisi has pointed out (2007, 110–11), it is not correct to establish a direct and simplistic link between the Being, Same and Different of which the World Soul is formed in the *Timaeus* and the supreme genera in the *Sophist*.

[66] On the decision to interrupt the operation at the power of the cube, cf. Moutsopoulos 1959, 364–5, who connects it to the fact that the cube represents solid bodies and that the sum of the first six numbers produces the seventh; for Lippman (1964, 24) this should be seen in relation to the threefold aspect of the soul. Cf. Robinson 1970, 77, on the idea that to introduce the cube, symbol of the dimension of solid bodies, into the soul should be linked to the possibility of filling the ontological void between the non-material soul and the matter in which it is immersed. Concerning the inversion of eight and nine, it can be explained by the fact that here the alternation is observed between the progression with a common ratio of 2 and that with a common ratio of 3, and the power of 3^2 (the square) is inferior to the power of 2^3 (the cube), cf. Cornford 1937, 67 n. 1; Moutsopoulos 1959, 364 and n. 5; Kayas 1979, 294–5 and n. 1.

[67] The ancient exegesis is divided on the visual depiction of these two progressions, between the lambdoidal, according to Crantor's proposal:



and triple intervals – that is in the series of 2 and the series of 3 – with the help of parts of the initial mixture, respecting a division according to two means: harmonic and arithmetic.[68] The demiurge inserts these two means between 1 and 2, then between 2 and 4, . . . ; and between 1 and 3, between 3 and 9 and so on. The series, complete with the insertions between the intervals, present themselves thus (the numbers of the two progressions are shown in bold): (progression with common ratio of 2) **1** ▪ 4:3 3:2 ▪ 2 ▪ 8:3 3 ▪ **4** 16:3 6 ▪ **8**; (progression with common ratio of 3) **1** 3:2 ▪ 2 **3** 9:2 ▪ 6 **9** 27:2 ▪ 18 **27**.

At this point the demiurge notes that, in the sequences formed in this manner, other intervals can be found that have three precise types of relationship: the *hēmiolios*, of one and a half, the *epitritos*, of one and a third, the *epogdoos*, of one and an eighth. They are the ratios that define the musical intervals of the fifth, fourth and a tone. The demiurge concentrates on the intervals of the fourth (4:3), beginning to fill them with the intervals of the tone (9:8). In every fourth he can insert a maximum of two tones and he is left with a remainder corresponding to 256:243.[69] Interpolating the last additions too, the sequence of **1** to **2**, for example, becomes: **1**, 9:8, 81:64, 4:3, 3:2, 27:16, 243:128, **2**. The intervals defined in this series are those of tone, tone, *leimma*, tone, tone, tone, *leimma*, in a sequence that covers an octave. It is the Pythagorean diatonic octave, probably just as it was analysed by Philolaus.[70]

In this way, the demiurge makes use of all the 'matter' at his disposal (36b5–6), building a sequence that, from a musical point of view, stands as a

(cf. Adrastus, *ap*. Theon Sm. 95–6) and that of a single straight line, according to Theodorus of Soli's proposal (cf. Plut. *De an. proc*. 1017e, 1027c–e, who rejects Theodorus' solution and accepts that of Crantor).

[68] The three means used in this passage – geometric, arithmetic and harmonic – are the same that Archytas recognises as having importance in the field of music in fragment 2. It is interesting to note the use of the term *diastēma* in *Tim*. 36a1, a term that has clear musical connotations (cf. *Resp*. 531a7; *Phil*. 17c11).

[69] It concerns the value that is defined as *leimma* in musical theory. According to Pythagorean musical theory, the tone divides into two unequal ratios: the *apotomē*, called a major semitone (2187:2048) and the *leimma*, a minor semitone (256:243); but in musical theory, *leimma* can also generically indicate the *diesis*, the minimal interval of a system.

[70] Cf. Huffman 1993, 145–65, and in particular 149–51, for the connections between fragment 6 of Philolaus and *Tim*. 35–6. In Archytas' analyses, which do not only take into consideration the tetrachord in the diatonic genus but also in the chromatic and enharmonic, the division of the diatonic tetrachord is different from that of the scale in the *Timaeus* and Philolaus' fragment:

HYPATĒ	PARHYPATĒ	LICHANOS	MESĒ
PHILOLAUS	256:243	9:8	9:8
ARCHYTAS	28:27	8:7	9:8

very extensive scale, regarding which interpreters of the Platonic texts have put forward various hypotheses of subdivision (Kayas 1979, 298–310). It is nonetheless a scale whose extension would be anomalous in musical theory and practice.[71] How should such an apparently 'extravagant' construction be explained? It is clear that various ideas merge together in this passage, and not only musical ones. It is neither a theoretical musical text, nor a faithful testimony of musical practice of the time, but the exposition of an elaborate cosmological plan, that finds 'musical mathematics' to be an effective instrument of elaboration.

Once this strip of precise harmonic ratios has been put together, the demiurge divides it in two longitudinally and puts the two halves over one another to form an X. Then he joins up the ends of each strip to form two circles that meet at the point opposite the first intersection (36b6–c2). The demiurge then confers their own movements on both the external and internal circle: the first is characterised by the movement of the nature of the Same, the second by that of the Different (36c2–5). The rotation of the Same represents the sky and fixed stars (celestial equator), while the seven rotations of the Different represent the orbits of the Sun, Venus and Mercury, the Moon, Mars, Jupiter and Saturn.[72] The movement of the Same, which proceeds according to the right, is superior to the other, because it stays 'whole and undivided', whereas the movement of the Different goes according to the diagonal to the left and is divided six times in seven unequal circles according to the interval of the double and triple, so that there are three intervals to each genus. The numbers are those of the

[71] Moutsopoulos 1959, 369 n. 6; Lippman 1964, 23; Barker 1989a, 60 n. 18.

[72] For exact analyses and useful illustrations relative to this passage, see Taylor 1928, 155–73; Cornford 1937, 72–93; Dicks 1970, 116–23; Kayas 1979, 310. The complex musical and astronomical structure in *Tim.* 35a–36d evokes the theme of the harmony of the spheres. It appears, in more explicit and 'sonorous' terms in Er's account in *Resp.* 617b4–7 and is examined and rejected by Aristotle in *De caelo* 290b15–291a26, where there is also an explanation of the fact that this music is not perceptible. This is because it represents a continuous background that accompanies man from birth; hence it is never broken by a silence that would indeed make it appear to be a sound. If one can read in Archytas, 47 B1 DK, 433, 10–13 an allusion to the harmony of the spheres (as seems to be indicated in Porph. *In Harm.* 80, 28–81, 16), the Pythagoreans provide a different explanation than that put forward by Aristotle: the sounds that are too great are not audible because they cannot insinuate themselves into the hearing. The explanations that seem to bear the echo of Platonic doctrine are interesting: Plutarch (*Quaest. conv.* 745d–e) and Aristides Quintilianus (*De mus.* 120, 8–16) associate the inability to hear the harmony of the spheres to the dulling caused to the soul when it entered the corporeal dimension. The perception of this celestial music is put forward as the exercising of an extraordinary faculty, both perceptive and rational: see Iambl. *V.P.* XV, 65–7 with reference to Pythagoras. On the variously elaborate explanations regarding the impossibility of perceiving celestial harmony, with particular attention to the Neoplatonists in late Antiquity, see O'Meara 2007, 148–57. On the harmony of the spheres, see Reinach 1900; Schuhl 1934, 261–70; Boyancé 1946; Guthrie 1962, vol. I, 295–301; Burkert 1972, 350–7; MacLachlan 1991; Levin 2009, 13–17.

sequence that we have already met in the construction of the World Soul: 1, 2, 3, 4, 8, 9, 27, a succession that contains three 'double intervals' (2:1, 4:2, 8:4) and three 'triple intervals' (3:1, 9:3, 27:9). The demiurge orders the circles to move in opposite directions to each other: Sun, Mercury and Venus move at the same speed; while the Moon, Mars, Jupiter and Saturn move at different speeds with respect to each other and the other three, but always following a precise musical–numerical ratio (36d4–7).

However obscure its details may be, this complex description contains a clear psychological fact: the rational soul itself has a complex articulation within it, because it is precisely made up of a harmonic composition of different elements. The perfect spectacle of psychic harmony is, at the same time, an image of fragility: the musical scale in the *Timaeus* also carries the message of the susceptibility of the soul to mislay its 'tuning'. As has been effectively pointed out (Johansen 2000, 95–6, 111), the fragmentation of the soul in the circles of the Same and Different represents a fault that is brought about by the shaking of the body; it stands for 'a potential for irrationality': a potential that embodiment evidently takes care of activating. But is it only the lack of unity that makes the immortal human soul susceptible to disorder or does the inferior purity of its elements play a role too? We note that the possession of an articulated structure does not cause the World Soul to be vulnerable in any way. It is possible that the intrinsic fragmentation of its own structure exposes the immortal human soul to the risk of irrationality and that, nevertheless, it is the lesser purity of their own elements that contributes in a decisive manner to make the contact with the corporeal dimension invasive and damaging.

Now, in the light of psychogony, we can fully comprehend how a direct intervention of music on the rational soul is possible: through harmony and rhythm, the soul endeavours to tune itself, searching for the ideal musicality of its origins. The psychic state on which music intervenes is the overturning of a complex and perfect balance that is the equilibrium of a musical structure. The orbits of the Same and Different that, in the corporeal dimension, are hindered in their own movement, damaged in their own make up and upset in their reciprocal relationships, are formed of a 'matter' that is divided musically. In the *Timaeus*, the idea that upholds the entire Platonic reflection on music, that is that music reaches, moulds and cures the soul, seems to acquire a physiological and kinetic basis that consolidates and deepens it at the same time.

Furthermore, having appreciated the reflections on auditory sensation in the *Timaeus*, we can add some pieces to the whole picture of the relationships between sensibility and rationality in the musical experience.

The route that sound takes within the body is not random, nor is it dictated only by physical and physiological causes: it is the route that a sensible undertakes in a perceptive process that presents itself as both a physical and a psychic act. Besides, the auditory apparatus that is only gauged in its functional and mechanical aspect in 67a–c (although, as we have noted, this nonetheless implies considering its relationships with the *psychē*), is among those organs appended by the gods to the human head for 'the foresight of the soul'. They are the organs that are to be found on the most divine part of the body that is the head, whose purpose is to receive the rational soul with its fragile and precious structure of musical orbits. Reaching the head through the ears, musical sound encounters the structure that can better understand its messages and reap the benefits thereof: a soul-harmony, damaged in its musical order, but able to perceive in the sensations solicited by music the familiar echo of the perfect harmonic ratios of its origins and the chance to find itself once more.

Conclusion

The main objective of this book has been to understand if and how the Platonic analysis of the musical phenomenon can throw light on Plato's ideas of the relationships between soul and body and of cognitive, emotive and perceptive processes. But it has also been necessary to confront general themes relative to ancient Greek music, in two areas in particular: the theories on the representative, expressive and formative possibilities of music; and the acoustic theories of the creation, diffusion and perception of sound.

With regard to the first of these areas, the analysis of musical *paideia* in *Resp*. II–III and *Leg*. II and VII has brought to light a notion of *mousikē* with two distinct characteristics: (1) its ability to represent very precise contents and to impress them on the *psychē*; (2) the close interconnection between its components (words, harmony, rhythm and dance), according to precise hierarchical relationships. We should certainly not ignore the ideal and projective character of *mousikē*; nevertheless we can consider (1) and (2) typical aspects of ancient Greek music, at least to a certain extent and at a certain point. That which Plato attempts to invigorate, and ends up by transforming, is a *traditional* ideal of music.

The analysis undertaken in this study has offered lines of inquiry that lead to an understanding of the relationship between (1) and (2). When considering the representative and formative powers of *mousikē* we should bear in mind that it could count on various languages to communicate its contents. But this does not mean that *mousikē* is more communicative because it can make use of, for example, the expressivity of words and dance movements: every single component seems to have its own specific representative and expressive power, and to contribute to the global expressiveness of *mousikē*. The requirement that the elements of *mousikē* have opportunely correlated between themselves derives from this

awareness and not from the idea that some elements have scanty 'ethical' powers.

As stated beforehand, I have concentrated above all on the component of sound in *mousikē*: harmony and rhythm. I considered the particular communicative possibilities of music in the strict sense and the association that it has with the other elements of *mousikē*. It is beyond doubt that, in the light of the treatments of the *harmoniai* and rhythm in the *Republic* and the *Laws*, Plato does not deny representative and formative powers to absolute music. He constrains and subordinates music to the verbal contents of *mousikē* not because, for him, music is not able to 'speak', but on the contrary because it does so effectively and in ways that present risks. The necessity to avoid music freeing itself from words is connected to the need to control an elusive form of communication: a way of checking music is entrusting it with the same contents as verbal communication, which is more manageable because it is more comprehensible with rational instruments. As we know, beyond the project of an ideal *paideia*, the reality is quite different: while Plato preaches the need for music to fall into line with poetic text, the divorce between music and word has already irreparably occurred, and music is more free to speak its effective and 'dangerous' language.

How should we take the idea that it is possible to translate mental states and ethical contents into sounds, and that it is possible to provoke a psychic and moral response in the listener? Not in the manner in which we say today that a piece of music is happy or sad and solicits analogous states of mind (on a basis of tonality, for example). The contents and mechanisms of musical communication, as they emerge in Plato's writings, seem to be something more precise and more incisive altogether, and capable of touching the moral sphere. It is likely that, in some cases, there is a certain level of artificiality in the operation with which Plato, like other supporters of theories of musical *ēthos*, assigns a moral content to specific sound structures. But, beyond single connections, what is interesting is to ascertain on which musical and psychological theories the possibility of establishing these connections is based. As we have seen, there is a perceptible difference between the passages in which Plato seems to appropriate themes of the current theories and beliefs and the passages in which the connection between music and the *psychē* is reconstructed and renewed by means of the reflection that he is conducting on the soul. The theory of *ēthos* presupposes a pregnant meaning of the representative faculties of music and the interaction between music and *psychē*; but such a theory is a description more than an explanation of the impact that music has on the

soul. We can consider some passages of the dialogues as attempts to find an answer to questions that the theory of *ēthos* raises, but does not resolve.

Moving on to the second area of music handled in this book, we note that the aspect conferring an original perspective to the acoustic reflections in the *Timaeus* (67a–c) is without doubt the perceptive theory to be found in the dialogue (and in the latter dialogues in general). I refer, in particular, to the 'psychologisation' of the perceptive act and the role that perception plays in the birth of sensible qualities. In *Tim*. 80a–b, Plato takes up the perception of concord: an experience that is anything but banal in a musical practice characterised for the most part by a succession of sounds; nevertheless an experience that exists to some extent, if the philosophers speak of it while examining other questions (cf. Arist. *De sensu*). Plato endeavours to find a solution to reconcile the idea that the pitch of a sound depends on its speed of propagation with the idea that *symphōnia* is the simultaneous perception of two sounds of different pitch. The solution that he provides is highly complex, not entirely clear and convincing, and only partially advanced to resolve the acoustic question, but it merits consideration for its value in terms of musical theory.

In relation to the nucleus of this work, a notion has imposed itself with great frequency as the most appropriate to describe the processes of interaction between soul, body and music: the notion of movement. It has appeared to be operative in different contexts, both in the musical treatment of sensibility and in that of rationality, revealing itself to be a kind of hub around which the soul–body–music dynamic in Platonic reflection rotates. Music, as a *kinēsis*, can soothe infants by opposing the psychophysical movement of fear. Music, as a movement, can instil moral qualities and condition emotions and sensations. And finally music, as a movement, acts on a disturbed rationality, restoring its balance and functions. Movements too are the sensations of pleasure that music brings, and the nexus between the different artistic forms in which *mousikē* expresses itself.

All this is hardly surprising if we consider that movement indeed constitutes a characteristic trait common to soul, body and music. Starting with the soul (*to aeikinēton*, *Phaedr*. 245c5–9) that has an essential character in the best of movements, the circular; turning to the body, characterised by six movements that lack regularity (cf. *Tim*. 43b); and ending up with music, whose kinetic character is the background of the entire Platonic treatment, even if it only emerges explicitly in certain passages, for example *Tim*. 47c–e. Certainly, to appreciate the role of movement as a hub around which the interaction of soul–body–music circles we must free ourselves of the Cartesian lenses.

Indeed the most relevant contribution that a reflection on music offers to the study of a philosophy of the mind in Plato consists in illuminating the area of intersection between psychic and physical, which in a dualist perspective tends to remain hidden. The references to music reveal deep interrelations between sensible perception, emotion and reason: reason is involved in the perceptive processes; on the other hand the emotions have a cognitive function. In particular, many of these themes emerge in the *Timaeus*. In music's intervention on the rational *psychē*, contemplated in this dialogue, themes of the reflection on a musical conditioning of the sensibility can be found; at the same time, ideas regarding the nature, processes and structures of rationality come to light. In such a way, the reflection on music in the *Timaeus* builds a bridge between the potency of music on sensibility and on rationality.

To reflect on the nature of music and what it signifies to listen to it, understand it, make use of it and enjoy it leads Plato to the crucial question of the relationship between the sensible and intelligible contents of *mousikē* and the impact that they have on sensibility and the intellection of man. I have advanced the hypothesis that Plato's attitude with respect to the question is conditioned by the psychophysical subject that he means to handle with music and the manners of treatment. The twofold nature of the musical phenomenon assumes a series of different expressions in relation to its psychophysical interlocutor.

Music enters the dialogue between soul and body to direct it towards positive results, but in the meantime it complicates it. I have shown that the attempt to use music successfully and the attempt to describe the nature of soul and body and their relationship are strictly connected in the Platonic agenda. We have found Plato's possible response to the question of how soul, body and music interact in the notion of movement. But we must remember the occasions on which, faced with such a notion, we have received the impression that it did not take into account many psychophysical implications of the musical experience. Perhaps the most relevant case is *Tim.* 47c–e: the description of the interaction between music and the rational *psychē* in terms of the contact between similar movements does not account for many aspects of the musical experience, even those weighed up by Plato in the *Timaeus* itself. The notion of movement seems the most appropriate to describe something destined to remain inexpressible, in its essence.

Plato seems to be well aware that complex interactions between musical, psychic and corporeal movements exist. He decides to investigate them and study their effects, and he finds the way to use them for philosophical

purposes. But there exists no definitive explanation in the dialogues of how these interactions come to pass. The treatment in the *Timaeus*, very illuminating at various points in our analysis, could now conceivably offer us a further clue. Perhaps we should apply Timaeus' famous affirmation in which in some circumstances we must content ourselves with an *eikōs mythos* to the soul–body–music interaction as well.[1] Timaeus' 'prelude' (29d4–6) closes with the observation that the discourses are 'akin' to that which they are examining: discourses on something that represents the model cannot aspire to show the level of verisimilitude of those that look at what is stable and certain (29b3–c2). And Timaeus' 'song' begins with a reflection on how God created the physical world and put 'thought within the soul and the soul within the body' (30b4–5: *noun men en psychēi, psychēn d'en sōmati*), to then speak through a 'likely account' (30b7: *kata logon ton eikota*). The interaction of the soul with the body and the interaction of these entities with music belong to the phenomenal dimension, that has the value of an 'image' on which there can be given a verisimilar (more or less verisimilar, depending on the context) account, but not a true one. Are we thus invited, in a similar manner to Socrates in the *Timaeus* (29c4–d3), not to be surprised if this analysis has failed to produce discourses that are exact and coherent with each other (*homologoumenous logous kai apēkribōmenous*) around the soul–body–music relationship? And must we therefore content ourselves with a 'likely account'?

I believe that the answer is affirmative, and not only, obviously, with respect to the treatment of music in the *Timaeus*. Plato confronts the necessity and difficulty of describing the relationship between soul and body and at the same time of underlining the distinction between the two entities. He also tackles the predicament of describing how music interacts with the soul and body. It seems to me that the two difficulties are linked and destined to be resolved more on a metaphorical plane than a rational one. The descriptions in mythical terms of the soul and its location in a corporeal entity are numerous, in confirmation of the fact that one cannot rationally account for the *psychē*, an intermediate reality between the sensible and the intelligible (Brisson 1982; 2007, 26). We have also seen how rich the images of a musical order of the soul are, above all in the *Republic*. Figurative elements are also found where Plato decides to show how the communication between soul, body and music comes about. This is the manner in which I believe we should interpret the notion of

[1] On *eikōs mythos* in the *Timaeus*, see Howald 1922; Cornford 1937, 30 ff.; Witte 1964; Dicks 1970, 237 n. 162; Brisson 1974, 104 ff.; Hadot 1998.

movement of which I spoke above. It is not a 'true' explanation, which is perfectly rational and coherent in every detail, but a 'likely' interpretation of a reality of becoming: what happens when the soul and body experience music. Like an *eikōs mythos*, it does not have a demonstrative rigour, but it does possess the strength to strike and fascinate some of our psychic components.

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